

# **Power Business Line - Operating Expense**

## **Mission Supporting Goals and Objectives**

Production includes all BPA strategic resource planning and business development, short and long-term power purchases, wheeling, electric utility marketing of resources, hedging-related costs, generation and oversight costs, including the large thermal nuclear projects. These activities identify the Administrator's load obligations, develop product plans and services to meet the needs of BPA customers, and acquire resources as needed. As a means of mitigating power market risk, BPA's Hedging Policy allows the use of financial instruments in the power, natural gas, and aluminum markets to hedge the price of electricity and reduce BPA's exposure to market fluctuations and certain index sales contract provisions.

Associated Projects provide funding for operation and maintenance costs for the FCRPS; minor additions, improvements, and replacements; and liabilities of the Corps of Engineers and Bureau of Reclamation hydroelectric projects in the Pacific Northwest, which serve many purposes. Both agencies are emphasizing efficient power production from existing facilities and improvement of the performance and availability of power units. BPA pays additional financing costs of the FCRPS facilities through its Interest Expense and Capital Transfer budget programs. BPA is responsible for the actual operations and maintenance expenditures incurred as part of the Lower Snake River Compensation Plan (LSRCP) hatcheries. Bonneville is responsible for annual payments to the Confederated Tribes of the Colville Reservation for their claims concerning their contribution to the production of hydropower by the Grand Coulee Dam in accordance with the Settlement Agreement between the United States and the Tribes (April 1994). Beginning in FY 2001, as part of Reclamation operation and maintenance costs, Bonneville is responsible for the power portion of the Green Springs Powerplant operations and maintenance costs.

Fish and Wildlife expenses provide for the protection, enhancement and mitigation of Columbia River Basin fish and wildlife due to losses attributed to the development and operation of hydroelectric projects on the Columbia River and its tributaries. BPA discharges a major portion of its fish and wildlife responsibilities pursuant to Section 4(h) of the Northwest Power Act by funding projects and activities designed to be consistent with the Planning Council's Fish and Wildlife Program. To satisfy its responsibilities under the Endangered Species Act, BPA implements measures in the biological opinions issued by the NMFS and the USFWS regarding the operations of the Federal Columbia River hydro system.

Fish and Wildlife program estimates reflect, and are consistent with, the fish and wildlife principles that originally were identified in the 1996 Fish Budget MOA.

NMFS and USFWS issued new Biological Opinions (Bos) on FCRPS operations in December 2000. The BO's require the Action Agencies (COE, BOR, and BPA) to implement actions throughout the Columbia River Basin that comprehensively address all the life stages of Endangered Species Act (ESA)-listed fish. BPA's responsibilities under the 2000 FCRPS BO's are expected to significantly escalate its Fish and Wildlife costs in future years. To plan for this expected increase, BPA incorporated a wide range of fish and wildlife costs for rate-setting purposes. Based on the 2000 FCRPS BO requirements, BPA expects to annually obligate an average of \$150 million for fish and wildlife for the rate case covering FY 2002 - 2006. This is within the range assumed in the

power rate case, which assumed an annual average of \$139 million, based on a range of \$109 - \$179 million of accrued expenses.

BPA's fish and wildlife expense funds will focus on activities that benefit Columbia River Basin fish and wildlife resources including projects designed to:

- increase survival of ESA-listed fish at FCRPS dams and reservoirs;
- increase survival of ESA-listed fish throughout their life cycle by protecting and enhancing important habitat areas;
- reform hatchery practices and use hatcheries to contribute to conservation and recovery of ESA-listed fish;
- reduce harvest-related mortality on ESA-listed fish and support sustainable fisheries; and,
- support a disciplined and well-coordinated research, monitoring, and evaluation program.

BPA is working to integrate the actions implemented in response to the 2000 FCRPS BO's with projects implemented under the Council's Fish and Wildlife Program. In the near term, BPA will use the Council's Provincial Review process as the primary vehicle for soliciting project proposals to address BO actions. Provincial Review project solicitations will identify specific BO implementation needs in conjunction with the broader non-ESA Northwest Power Act priorities. BPA also may use targeted solicitations if BO requirements are not fully satisfied through the Provincial Review's solicitations.

The FY 1997 Energy and Water Development Appropriations Bill added section 4(h)(10)(D) to the Northwest Power Act, directing the Planning Council to appoint a Scientific Review Panel "to review projects proposed to be funded through that portion of Bonneville Power Administration's fish and wildlife budget that implements the Planning Council's fish and wildlife program." And, "... in making its recommendations to BPA, the Planning Council shall consider the impact of ocean conditions on fish and wildlife populations; and shall determine whether the projects employ cost effective measures to achieve program objectives." Consequently, projects funded under Bonneville's direct program will be reviewed and prioritized as part of the Planning Council initiative process.

The Northwest Power Act created the Residential Exchange Program (REP) to extend the benefits of low-cost Federal power to Pacific Northwest electric utilities serving the residential and small farm customers of the Pacific Northwest. The 1996 Comprehensive Regional Review recommended that BPA engage in settlement discussions regarding Residential Exchange. BPA developed a Subscription Strategy based on the recommendations of the Comprehensive Review. That strategy proposed a comprehensive settlement of the REP for Investor-Owned Utilities (IOU) in the Pacific Northwest which has resulted in new contracts with regional IOUs that provide power and monetary benefits to their residential and small farm customers.

To settle the REP with the Investor-Owned Utilities, IOU customers were offered 1900 aMW in power and monetary benefits. The power was sold at a price equivalent to the priority firm power rate. The monetary benefits are calculated based on a forecast of the cost of purchasing the power in the market less the price used for sale of power to the IOU customers. All 6 regional IOUs signed contracts in the fall of 2000 implementing this settlement of the Residential Exchange. They originally were to receive 1000 aMW of power and 900 aMW in monetary benefits for FY 2002-2006, but the IOUs subsequently converted 619 aMW of power to monetary benefits. In FY 2007 the total amount of settlement benefits changes to 2200 aMW. Under the Subscription

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strategy, BPA stated its intent for all of these benefit to be provided as power; however, BPA may provide either power or monetary benefits under the terms of the settlement agreements.

BPA's preference utilities, or public agency utilities, are eligible to execute new Residential Exchange Program contracts beginning in 2001, except for the nine utilities that previously executed settlement agreements for terms ending July 1, 2011. These customers are forecasted to have average system costs that are lower than the Exchange Program rate and thus would not qualify for these benefits.

The Northwest Power Act directs that expenses of the Planning Council, subject to certain limits based on forecasted BPA power sales, shall be included in BPA's annual budget to Congress. Funding for the Planning Council is provided by Bonneville and is recovered through Bonneville rates. Its major activities include the periodic preparation of a Northwest Conservation and Electric Power Plan (a 20-year electric energy demand and resources forecast and energy conservation program) and a Columbia River Basin Fish and Wildlife Program of loss mitigation and resource enhancement actions.

The competitive market situation is driving the need for alternatives to the traditional approaches to developing conservation resources. PBL will acquire conservation in accordance with the Northwest Power Planning Council's guidance and act as a catalyst for energy efficiency and direct application renewables. The resources will provide a vital component of PBL's diversified resource portfolio: (1) meet conservation targets; (2) achieve a least cost resource mix; (3) dampen the cost impacts of power purchases; (4) avoid the costs of ramping programs and infrastructure up and down; (5) extend the value of the FCRPS to customers; (6) cushion the need for rate increases; and (7) build the region's resource portfolio with conservation and direct application renewables.

### Funding Schedule (Accrued Expenditures)

	(dollars in thousands)				
	FY 2001	FY 2002	FY 2003	\$ Change	% Change
Production . . . . .	2,980,900	1,875,900	1,685,300	-190,600	-10.2%
Associated Projects Costs.	195,400	209,800	223,700	+13,900	6.6%
Fish & Wildlife. . . . .	102,800	150,000	150,000	0	0%
Residential Exchange . . . .	68,100	143,800	143,800	0	0%
Planning Council . . . . .	7,300	8,300	8,300	0	0%
Conservation and Energy Efficiency	30,900	35,400	34,900	-500	-1.4%
Total, Power Services - Operating Expense . . . . .	3,385,400	2,423,200	2,246,000	-177,200	-7.3%

## Detailed Program Justification

(dollars in thousands)		
FY 2001	FY 2002	FY 2003

<b>Production .....</b>	2,980,900	1,875,900	1,685,300
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**Short-Term Power Purchases/Pacific Northwest Coordination Agreement (PNCA) Interchange:** Includes purchase power for efficient operation of the power system, fish mitigation and resale. Due to higher and more volatile market prices in 2001, Bonneville was subject to much greater demand for service from its customers. This increase in load demand over the rate period indicates that Bonneville may need to make substantially greater power purchases in the market. In order to mitigate a larger rate increase, FY 2002 and FY 2003 expenses include \$484 million, and \$341 million respectively, in IOU and DSI load buy downs. See additional discussion of the evolving power market included in "Significant Accomplishments and Program Shifts" included in the Program Mission section of this budget.

Under terms of the PNCA, BPA makes interim cash payments to other generating utilities for power received as interchange energy. Likewise, BPA receives interim cash payments from other generating utilities for power that BPA delivers as interchange energy. Interchange energy is an energy exchange between utilities to supply all or a part of any deficiency between a utility's actual energy capability and its firm energy load carrying capability. The energy is then returned to the supplying utility at a time that it has a deficiency.

- **Power Scheduling/Marketing:** Schedule and market (buy/sell) electric energy with BPA customers and the Pacific Northwest's interconnected utilities. Scheduling includes PBL's implementation of physical and memo power schedules and associated transmission schedules, implementation of Electronic Tagging (ETag) in accordance with NERC, and in accordance with FERC, implementation of electronic scheduling and the RTO as it evolves. PBL's acquisition of a new Transaction Scheduling System will facilitate the above needs. Place major emphasis on marketing for support of the Biological Opinion of the Fish and Wildlife Program.
- **Trojan:** Continue termination and decommissioning of BPA's 30 percent share of the Trojan Nuclear Plant. Due to a delay in a major decommissioning project, activity at Trojan decreased for FY 2001 and should stay at a lower level through FY 2002. As work on the delayed project is restarted, activity should increase in FY 2003.
- **Columbia Generating Station (WNP-2):** Continue to acquire full capability of Columbia Generating Station (Columbia). Columbia has now completed the transition to a 24-month fuel cycle from a 12-month cycle. Changes are due to increased fuel costs associated with the transition and other major capital projects scheduled for out years. Outages occurred in FY 2001 and will occur in FY 2003.
- **WNP-1/WNP-3:** Continue to fulfill contractual obligations for WNP-1 and WNP-3.

(dollars in thousands)		
FY 2001	FY 2002	FY 2003

■ Long Term Power Purchases and Wheeling:

FY 2001 and FY 2002: Continue to acquire 100 percent of the Idaho Falls, Cowlitz Falls, Wauna and BPA's share of Foote Creek 1 project output. Continue contract payments on four billing credit projects. Continue to acquire 100 percent of the output of the Foote Creek 2 and 4 wind project and a 15-kW share of the output from the Solar Ashland Project.

FY 2003: Continue to acquire 100 percent of the Idaho Falls, Cowlitz Falls, Wauna and BPA's share of Foote Creeke 1 project output. Continue contract payments on four billing credit projects. Continue to acquire 100 percent of the output of the Foote Creek 2 and 4 wind projects and a 15-kW share of the output from the Solar Ashland Project. BPA decided to execute the contracts and acquire all of the output from the Condon and Stateline wind projects, and may acquire a portion of the output from the Maiden and Blackfeet wind projects. Make decisions whether to acquire output from seven additional wind projects.

■ Generation & Oversight:

FY 2001: Completed the NEPA process and issued a Record of Decision for the Condon Wind Project. Issued a Record of Decision for the Fourmile Hill Geothermal Project. Initiated additional renewable resource acquisitions.

FY 2001-2002: Continue to provide oversight of all contracts signed to date. Provide oversight of large thermal generating plants from which BPA purchases capability to insure that all BPA approval rights are protected; coordinate, communicate and administer agreements, issues and programs between BPA and the project owners. Make decision whether to purchase a share of output from the Stateline Wind Project. Initiate additional renewable resource acquisitions. Continue or initiate NEPA process for 10 new wind projects.

FY 2003: Continue to provide oversight of all contracts signed to date. Provide oversight of large thermal generating plants from which BPA purchases capability to insure that all BPA approval rights are protected; coordinate, communicate and administer agreements, issues and programs between BPA and the project owners. Complete NEPA process and make decisions whether to acquire wind projects initiated in FY 2001.

<b>Associated Project Costs</b> . . . . .	195,400	209,800	223,700
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- Support FCRPS project costs and work to strengthen relationships to improve project support and better understand project costs. This helps to maintain FCRPS system integrity and to attain BPA's strategic business objectives.

(dollars in thousands)		
FY 2001	FY 2002	FY 2003

- Bureau of Reclamation:  
FY 2001: Continue direct funding Bureau O&M power activities.  
FY 2002: Continue direct funding Bureau O&M power activities.  
FY 2003: Continue direct funding Bureau O&M power activities.
- Corps of Engineers:  
FY 2001: Continue direct funding Corps O&M power activities.  
FY 2002: Continue direct funding Corps O&M power activities.  
FY 2003: Continue direct funding Corps O&M power activities.

**Fish and Wildlife** ..... 102,800    150,000    150,000

In a manner consistent with the assumptions used for the FY 2002-2006 power rate case:  
Anadromous Fish: Continue implementing projects which support Endangered Species Act listed species and other measures called for under the 2000 FCRPS NMFS BO. Use the Council's Provincial Review and Sub-basin Planning processes to identify activities for implementation. Implement and develop activities that protect and enhance tributary and estuary habitat, improve mainstem habitat on an experimental basis, reduce potentially harmful hatchery practices, and contribute to sustainable fisheries. These activities have been selected in response to the Northwest Power Act section 2(6) to "protect, mitigate and enhance fish and wildlife including related spawning grounds and habitat on the Columbia River and its tributaries."

Resident Fish: Implement activities to determine the impacts of the FCRPS on bull trout and mitigate for those impacts, and promote the reproduction and recruitment of Kootenai River white sturgeon. These activities have been selected in response to the U. S. Fish and Wildlife Service 2000 FCRPS BO and the Northwest Power Act to "protect, mitigate and enhance fish and wildlife including related spawning grounds and habitat on the Columbia River and its tributaries."

- Continue mitigation in resident fish for anadromous losses (substitution), mitigation for reservoir operation impacts to resident fish, and continue to refine, quantify, and delineate the difference between the two.
- Wildlife: Continue the current program including funding for wildlife actions resulting from Planning Council Fish and Wildlife Program amendments for wildlife mitigation. These activities have been selected in response to the Northwest Power Act to "protect, mitigate and enhance fish and wildlife including related spawning grounds and habitat on the Columbia River and its tributaries."

**Residential Exchange** ..... 68,100    143,800    143,800

- Includes negotiated contract settlement agreement costs consistent with assumptions in the power rate case and subscription strategy.

(dollars in thousands)			
	FY 2001	FY 2002	FY 2003
<b>Planning Council</b> .....	7,300	8,300	8,300
<b>Conservation and Energy Efficiency</b> .....	30,900	35,400	34,900
<ul style="list-style-type: none"> <li>■ Close out the Legacy conservation resource acquisition contracts, which support BPA's contractual obligation to serve customer load growth. As part of the power subscription strategy and the 2002 Power Rate Case, BPA implemented a conservation rate credit system for utility customers.</li> </ul> <p>Provide credible, unbiased information or technical or financial support to conservation purposes. As an agency of the DOE, and with independent responsibilities based on its authorizing legislation, BPA has a statutory responsibility to provide support to certain conservation objectives which are governmental in nature, such as assisting in the development of emerging technologies and providing unbiased information to consumers. BPA is participating with other regional entities to support market transformation and development activities that meet the needs of BPA customers and create business opportunities for the private sector in the Pacific Northwest.</p> <ul style="list-style-type: none"> <li>■ Seek to make the existing energy efficiency marketplace larger by helping to remove barriers which customers face in the development of conservation projects. This opens up possibilities that have previously been foreclosed, thus serving to "grow the pie." This activity must be self-financing; that is, payments from customers must cover all of the costs of performing the service.</li> <li>■ Create and enhance markets for energy efficiency and end-use renewables through delivery of public benefits. Promote the development and implementation of new energy efficiency technologies. Provide leadership and collaborative funding for market transformation initiatives. Continue activities being performed through the regionally-funded Northwest Energy Efficiency Alliance through a multi-party agreement signed in 2000.</li> </ul>			
<b>Total, Power Business Line – Operating Expense</b> . . .	<u>3,385,400</u>	<u>2,423,200</u>	<u>2,246,000</u>

## Explanation of Funding Changes from FY 2002 to FY 2003

	FY 2003 vs. FY 2002 (\$000)
<b>Production</b>	
■ Decrease in short-term power purchases due to expected lower market prices, especially as more generation comes on-line in the region. ....	-190,600
<b>Associated Project Costs</b>	
■ Increase due to improvements, replacements, and minor additions .....	13,900
<b>Fish and Wildlife</b>	
■ No change. ....	0
..	
<b>Residential Exchange</b>	
■ No change. ....	0
..	
<b>Planning Council</b>	
■ No change. ....	0
..	
<b>Conservation and Energy Efficiency</b>	
■ Minor decreased costs due to program funding requirements .....	-500
<b>Total Funding Change, Power Business Line - Operating Expense .....</b>	<b>-177,200</b>



# **Transmission Business Line - Capital**

## **Mission Supporting Goals and Objectives**

The Transmission Business Line (TBL) provides for all additions, upgrades, and replacements to the Federal transmission system in the Pacific Northwest, allowing reliable service to be provided to Northwest industrial users and utility customers. The transmission system also allows for the sale and exchange of power to and from the region.

TBL plans to make significant improvements and additions to the system over the next five years to assure reliable transmission in the Northwest. These improvements and additions will help the Federal transmission system remain in compliance with national reliability standards, allow for interconnection of needed new generation, remove constraints that limit economic trade, remove constraints that limit the ability to maintain the system, and replace aging equipment. No major transmission projects have been built since 1987. Only incremental additions have been built into the system over the years, but it is stretched to the limit. Approximately 30,000 MW of generation are under consideration for siting in the Northwest. The Transmission System will become even more stressed with the addition of generation if nothing is done to reinforce the existing network. The map on the following page shows the constrained paths in the Northwest region.

The first phase of Bonneville's infrastructure addition consists of the following major projects:

(1) Puget Sound Area Additions; (2) North of Hanford/North of John Day; (3) West of McNary; (4) Starbuck Generation; (5) Lower Monumental & McNary Area Generation (Phase II); (6) Cross Cascades North; (7) Celilo Modernization; (8) I-5 Corridor Generation Additions; (9) Spokane Area and Western Montana Generation Additions. These projects are further described below.

Bonneville assumes that some generators will integrate their load into the Federal system. Depending on which generators build on sites in the Northwest and the project locations: between 8000 to 12000 MW can be integrated with the completion of the above additions and improvements. The benefits will include relief from congestion, as well as restoring reliability margin back in the grid. This additional margin will be used to respond to a competitive market, meet regional load during outages, move power to meet changing loads, perform maintenance without harming the market, and allow the RTO to start without the regional grid heavily congested.

The system replacement plan is to replace high-risk, obsolete, and maintenance-intensive facilities and equipment and to reduce the chance of equipment failure by: 1) replacing high voltage transformers and power circuit breakers which are at or near the end of their useful life; 2) replacing risky, outdated and obsolete control and communications equipment; and 3) replacing all other existing high-risk equipment and facilities affecting the safety and reliability of the transmission system.

Bonneville will continue to fund fiber optic communications facilities needed to meet Bonneville's projected operational needs. To the extent that these investments create temporary periods of excess fiber optic capacity, such capacity can be made available to telecommunications providers and to non-profits to meet rural and other needs in Bonneville's service area. Bonneville's investments in fiber optics, including the role of the private sector in building fiber optic networks, is consistent with the "Fiber Optic Cable Plan" submitted to Congress on May 24, 2000, accompanying the FY 2000 Energy and Water Development Appropriations Act. In accordance with this plan, when possible, Bonneville will seek partnerships with fiber optic facility and service providers to meet its needs.

### Funding Schedule (Accrued Expenditures)

(dollars in thousands)					
	FY 2001	FY 2002	FY 2003	\$ Change	% Change
Main Grid .....	16,600	133,700	299,700	+166,000	124.2%
Area & Customer Services .....	11,600	33,700	6,700	-27,000	-80.1%
Upgrades & Additions .....	91,800	49,700	26,400	-23,300	-46.9%
System Replacements .....	62,700	82,900	72,700	-10,200	-12.3%
Projects Funded in Advance .....	17,800	25,000	25,000	0	0.00%
Total, Trans Business Line - Capital	200,500	325,000	430,500	+105,500	32.5%

### Detailed Program Justification

				(dollars in thousands)		
				FY 2001	FY 2002	FY 2003
<b>Main Grid</b> .....				16,600	133,700	299,700

Strategic objectives: Bonneville's strategic objectives for main grid projects are to provide: voltage support; provide a reliable transmission system for open access per FERC criteria; provide for relief of transmission system congestion; and to assure compliance with NERC, Western Systems Coordinating Council (WSCC) and BPA reliability standards. During this budgeting period, projects are planned that will provide voltage support to major load areas that are primarily west of the Cascade mountains, and to provide for transmission access for new generation projects to the load center. Minor reinforcements in the Portland, OR/Seattle, WA corridor are also planned.

(dollars in thousands)

FY 2001	FY 2002	FY 2003
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- FY 2001: (1) Completed planning studies and beginning of design and material acquisition for the Schultz 500kV series capacitors; (2) Completed the design for the Raver-Paul 500kV outage relief via RAS modifications; (3) Completed planning and began design for a new line from McNary to John Day Substations in lieu of the proposed tap line from McNary to the Ashe-Marion 500kV line, that is required to provide firm transmission service to new generators near McNary and Lower Monumental area; (4) Completed planning studies for the West of Hatwai transmission problems resulting in a proposed new Bell-Grand Coulee 500kV line; (5) Continued planning studies to correct the PNW-Idaho transmission capacity problems, including negotiations with Pacific Corp. and Idaho Power; (6) Completed the first phase of planning studies to comply with the N-2 outage criteria; (7) Continued required studies for the Northern Intertie and Puget Sound load growth, resulting in a new 500/230kV transformer addition at SnoKing Substation and a proposed second Echo Lake-Monroe 500kV line to enable BPA to meet the Canadian Treaty obligation and serve load in the Puget Sound Area; (8) Completed studies and began design for a new Schultz-Blackrock area 500kV line in lieu of the proposed Hanford-Schultz 500kV line, to eliminate transmission capacity problems north of Hanford; (9) Completed studies for the retermination of the Raver end of the Schultz-Raver 500kV line into Echo Lake, which requires 9 miles of a new 500kV line to improve the load serving capability into the Puget Sound area; (10) Awarded turnkey contract for the Celilo mercury arc valve replacement; (11) Completed studies for the integration of new generation in the north of McNary area, resulting in proposed new 500kV lines between Starbuck and Lower Monumental Substations and between Wallula and McNary Substations per open access policies; (12) Continued planning studies to identify other system reactive needs to mitigate unacceptable low or high voltage problems and other system additions.

(dollars in thousands)

FY 2001	FY 2002	FY 2003
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- FY 2002: (1) Complete design of the Kangley-Echo Lake 500 KV line and substation addition at Echo Lake and the 500/230 KV bank addition at SnoKing substation; (2) Begin design of the Schultz-Wautoma 500 KV line; (3) Begin design of the new 500 KV Wautoma substation; (4) Complete environmental studies and begin design of the McNary-John Day 500 KV line and substation additions at John Day and McNary; (5) Begin design of the Lower Monumental-Starbuck 500 KV line and substation addition at Lower Monumental; (6) Begin design of the McNary-Smiths Harbor 500 KV line and the 500 KV shunt capacitor additions at McNary, Big Eddy, and Slatt substations; (7) Begin replacement of converter valves at Celilo; (8) Begin design of the Grand Coulee-Bell 500 KV line, the 500 KV series capacitor additions at Bell and Dworshak substations, 500 KV series capacitor replacement at Garrison substation, and the 500 KV shunt reactor addition at Grand Coulee; (9) Begin installation of the 500/230 KV bank addition at Pearl substation; (10) Begin design of the Libby-Bonners Ferry 230 KV line addition; (11) Begin design of the Hanford-Ostrander 500 KV loop to Big Eddy substation; (12) Complete cooling plant construction at Celilo for valve groups 1-6; (13) Begin installation of new converter valves at Celilo; (14) Award Furnish and Install (F & I) contract for the infrastructure line projects; (15) Continue planning studies and design to comply with the N-2 outage criteria; (16) Continue planning studies to identify other system reactive needs to mitigate unacceptable low or high voltage problems and other system additions; (17) Continue planning studies to identify system to improve infrastructure additions.
- FY 2003: (1) Begin construction of the Kangley-Echo Lake 500 KV line and substation addition at Echo Lake and the 500/230 KV bank addition at SnoKing substation; (2) Complete design of the Schultz-Wautoma 500 KV line; (3) Complete design and begin construction of the 500 KV Wautoma substation; (4) Complete design of the McNary-John Day 500 KV line and substation additions at John Day and McNary; (5) Complete design of the Lower Monumental-Starbuck 500 KV line and substation addition at Lower Monumental; (6) Complete design of the McNary-Smiths Harbor 500 KV line and 500 KV shunt capacitor additions at McNary, Big Eddy and Slatt substations; (7) Complete installation of the 500 KV series capacitor addition at Schultz substation; (8) Continue replacement of converter valves at Celilo; (9) Complete design of the Grand Coulee-Bell 500 KV line, 500 KV series capacitor additions at Bell and Dworshak substations, 500 KV series capacitor replacement at Garrison substation and the 500 KV shunt reactor addition at Grand Coulee; (10) Complete installation of the 500/230 KV bank addition at Pearl substation; (11) Complete design and begin construction of the Libby-Bonners Ferry 230 KV line addition; (12) Complete design and begin construction of the Hanford-Ostrander 500 KV loop to Big Eddy substation; (13) Complete design and begin construction of the Olympia-Satsop 500 KV line interchange to Shelton 500 KV line; (14) Begin preliminary engineering design of the Paul-Troutdale 500 KV line addition; (15) Continue planning studies for the integration of new generation facilities; (16) Continue planning studies to identify the system additions to solve the transmission system capacity congestion; (17) Continue planning studies and design to comply with the N-2 outage criteria; (18) Continue planning studies to identify other system reactive needs to mitigate unacceptable low or high voltage problems and other system additions; (19) Continue planning studies to identify infrastructure additions.

(dollars in thousands)

FY 2001	FY 2002	FY 2003
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**Area & Customer Services** ..... 11,600      33,700      6,700

Area and Customer service projects assure that Bonneville meets the reliability standards and the contractual obligations we have to our customers for serving load growth.

- FY 2001: (1) Continued design, material acquisition and began construction to replace the cable and upgrade support and maintain reliability for the San Juan area in NW Washington; (2) Continued design, material acquisition and began construction on the Shelton-Kitsap line rebuild to double circuit to provide voltage stability and prevent transformer and line overloads in the Kitsap area; (3) Continued studying the needs for reinforcements for the Southwestern Oregon Coast Project to maintain reliability in the Southwest Oregon Area; (4) Discontinued design and construction of the Custer-Intalco contractual obligations and provide reliability to the Snohomish, Washington area; (5) Continued preliminary engineering and design for miscellaneous facilities required to meet contractual obligations and maintain reliable service for the BPA service area.
- FY 2002: (1) Complete design, material acquisition and begin construction on the Shelton Kitsap line rebuild to double circuit to provide voltage stability and prevent transformer and line overloads in the Kitsap area; (2) Complete design, material acquisition and construction to replace the cable and upgrade support and maintain reliability for the San Juan area in NW Washington; (3) Continue studying the need for reinforcements for the Southwestern Oregon Coast Project to maintain reliability in the Southwest Oregon Area; (4) Continue preliminary engineering and design for miscellaneous facilities required to meet contractual obligations and maintain reliable service for the BPA service area.
- FY 2003: (1) Continue design and begin material acquisition and construction for reinforcements for the Southwestern Oregon Coast Project to maintain reliability in the Southwest Oregon Area; (2) Continue preliminary engineering and design for miscellaneous facilities required to meet contractual obligations and maintain reliable service for the BPA service area.

<b>Upgrades and Additions .....</b>	<b>91,800</b>	<b>49,700</b>	<b>26,400</b>
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Replacing older communications and controls with newer technology including fiber optics in order to maintain or enhance the capabilities of the transmission system. During this budget period, BPA will complete design, material acquisition, construction and activation of several fiber optics facilities to provide bandwidth capacity and high-speed data transfers to eventually replace microwave analog radios, which are becoming technologically obsolete and nearing the end of their useful life. Temporarily, in some areas excess fiber capacity is being offered for a term to telecommunications providers and public entities such as public utilities, schools, libraries, and hospitals providing them access to high-speed telecommunication services as a public benefit.

- FY 2001: (1) Continue completion of the Noxon to Kalispell section of the Noxon-Hot Springs 200 mile fiber optic project. This is part of the communications upgrade in Western Montana to replace aging analog radio systems and enhance control and communications to improve system reliability; (2) Completed the installation of fiber optic terminal equipment and switching of operational circuits onto the fiber at various BPA substations; (3) Completed design and material acquisition of fiber optic projects as a continuation of the overall upgrade to the operational telecommunication system; (4) Completed design, material acquisition and construction of microwave, digital radio system upgrades that are critical for the overall upgrade to the operational telecommunication system; (5) Completed additional efforts to separate Transmission from the Power scheduling function; (6) Continued planning, design, material acquisition, and construction of various system additions and upgrades necessary to maintain a reliable system for the BPA service area.

- FY 2002: (1) Complete design, material acquisition, and construction of 35 miles of fiber optic cable from Flathead Substation to Libby Substation and Libby Powerhouse; (2) Complete construction of the Kalispell to Hot Springs section of the Noxon-Hot Springs 200 mile fiber optic project; (3) Design, material acquisition and construction of 10 miles of fiber optic cable and terminations between Longview and Allston. This is part of the long range plans to implement reliable digital communications on the 500 kV main grid which also allows for more efficient interconnection of any new generation projects; (4) Continued design, material acquisition and construction of 37 miles of fiber optic cable and terminations between Custer and Intalco. This is part of the overall replacement of analog communications and which will become part of the Northern Intertie fiber loop that will provide reliable communications between western Canada and the US; (5) Continued design, material acquisition and construction of 97 miles of fiber optic cable and terminations between Bell and Taft. This is part of the overall upgrade of the backbone analog communications on the main grid. (6) Continue the installation of fiber optic terminal equipment and switching of operational circuits onto the fiber at BPA substations; (7) The 12 mile fiber optic cable between Raver and Echo Lake was re-scheduled into 2 phases. In FY 2002 Phase 1 of the design and material acquisition will continue; (8) Complete design, material acquisition, and construction of fiber optics projects to continue the improvement of the operational telecommunication system; (9) Complete design, material acquisition and construction of critical microwave, digital radio system with particular emphasis on the Montana area; (10) Complete additional efforts to separate Transmission from the Power Scheduling functions at the Dittmer and Munro Control Center; (11) Continue planning, design, material acquisition and construction of various system additions and upgrades necessary to maintain a reliable system for the BPA service area.
- FY 2003: (1) Complete material acquisition and construction of the 12 mile fiber optic cable on the Raver-Echo Lake 500 kV line, Phase 2 of this project; (2) As part of the overall effort to upgrade the analog system and provide a more reliable backbone communication system – design, acquire material and construct 33 miles of fiber optic cable and terminations from Covington to Maple Valley to Echo lake, 45 miles from Echo lake to Monroe to Snohomish, 68 miles from Snohomish to Bellingham, 8 miles from Bellingham to BC Hydro's system, 112 miles from Alvey to Marion to Pearl and 45 miles from Pearl to Ostrander to Troutdale. The connections from Covington to BC Hydro's system is what was referred to as the Covington to Blaine project that was previously deferred; (3) Continue design, material acquisition and construction of fiber projects and digital radio system upgrades to improve the operational telecommunication system and to meet rural needs; (4) Continue efforts to replace and upgrade operational and business tools at the control centers; (5) Continue planning, design, material acquisition and construction of various system additions and upgrades necessary to maintain a reliable system for the BPA service area.

<b>System Replacements . . . . .</b>	<b>62,700</b>	<b>82,900</b>	<b>72,700</b>
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Non-Electric Replacements:

- FY 2001: (1) Completed various maintenance building and control house roof replacements; (2) Completed seismic upgrades to buildings; (3) Completed various High Voltage Alternating Current (HVAC) replacements; (4) Completed various necessary non-electrical replacements based on RCR implementation; (5) Completed other non-electric replacements as required.

FY 2002: (1) Complete various maintenance building and control house roof replacements; (2) Complete seismic upgrades to buildings; (3) Complete various HVAC replacements; (4) Complete other non-electric replacements as necessary; (5) Begin design activities, material acquisition, and construction for the new Access Road Program, a prioritized effort to upgrade aging access roads to critical transmission lines; (6) Begin preliminary design and complete requirements for the Dittmer Control Center expansion at the Ross Complex.

FY 2003: (1) Complete various maintenance building and control house roof replacements; (2) Complete seismic upgrades to buildings; (3) Complete various HVAC replacements; (4) Complete other non-electric replacements as necessary; (5) Continue the design, material acquisition, and construction for the Access Road Program; (6) Complete design and site preparation for the Dittmer Control Center expansion at the Ross Complex.

Electric Replacements:

All electrical replacements were accomplished to maintain a reliable electrical system at the least cost by strategically replacing critical items.

- FY 2001: (1) Completed design, material acquisition, and construction of PCB-contaminated capacitor replacement at various locations; (2) Completed design, material acquisition, and construction of system protection and control equipment replacements and replacement of other substation and line facilities as needed to maintain reliability using RCR criteria. Such replacements include relays, annunciators, oscillographs, various types of communication related equipment and Supervisory Control And Data Acquisition (SCADA) equipment; (3) Replaced critical, operational tools and systems at the Dittmer and Munro Control Centers; (4) Continued replacing deteriorating wood pole transmission line structures.



- FY 2002: (1) Complete design, material acquisition, and construction of PCB-contaminated capacitor replacement at various locations; (2) Continue design, material acquisition, and construction of system protection and control equipment replacements, and replacement of other substation and line facilities as needed to maintain reliability using RCR criteria. Such replacements include relays, annunciators, oscillographs, various types of communication related equipment and SCADA equipment; 3) Start design and material acquisition of the replacement of aging control systems at the Celilo Converter Station necessary to continue operation of 3100 MW of DC transmission capability; (4) Continue replacing critical, operational tools and systems at the Dittmer and Munro Control Centers; (5) Continue replacing deteriorating wood pole transmission line structures.
- FY 2003: (1) Continue design, material acquisition, and construction of system protection and control equipment replacements and replacement of other substation and line facilities as needed to maintain reliability using RCR criteria. Such replacements include relays, annunciators, oscillographs, various types of communication related equipment and SCADA equipment; (2) Continue design and start construction of the replacement of aging control systems at the Celilo Converter Station necessary to continue operation of 3100 MW of DC transmission capability ; (3) Continue replacing critical, operational tools and systems at the Dittmer and Munro Control Centers; (4) Continue replacing deteriorating wood pole transmission line structures.

<b>Projects Funded in Advance .....</b>	17,800	25,000	25,000
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This category includes those facilities and/or equipment where BPA retains ownership but which are funded by another entity, either in total or in part through a cost-share agreement.

- FY 2001: (1) Completed design, material acquisition and construction of Teton Area Reinforcement facility needed to prevent low voltages in the Teton, Idaho and Jackson, Wyoming area; (2) Completed the design, material acquisition and construction of 70 miles of fiber optic cable from Keeler Substation to Tillamook Substation on the Northern Oregon coast; (3) Completed the integration of new 265 MW generation capacity at Rathdrum into the BPA transmission grid per Transmission Service Request via the Open Access Tariff; (4) Continued the integration of new 280MW generation capacity in Boardman, OR into the BPA transmission grid per Transmission Service Request via the Open Access Tariff; (5) Continued the integration of new 536MW generation capacity near Hermiston into the BPA transmission grid per Transmission Service Request via the Open Access Tariff; (6) Continued integration of new 270 MW generation capacity near Tacoma into the BPA transmission grid per Transmission Service Request via the Open Access Tariff; (7) Continued integration of new 248 MW and 225 MW generation capacities near Goldendale into the BPA transmission grid per Transmission Service Request via the Open Access Tariff; (8) Continued integration of new 600MW generation capacity near Chehalis into the BPA transmission grid per Transmission Service Request via the Open Access Tariff; (9) Conducted preliminary work to integrate the new 1200 MW generation capacity near Starbuck into the BPA transmission grid per Transmission Service Request via the Open Access Tariff; (10) Conducted preliminary work to integrate the new 1300 MW generation capacity near Wallula into the BPA transmission grid per Transmission Service Request via the Open Access Tariff; (11) Performed studies to identify system impacts and needs regarding proposed new generation projects; (12) Performed environmental cleanup and other work necessary for the sale of BPA facilities; (13) Completed other projects as requested by customers.

- FY 2002: (1) Complete the integration of new 280 MW generation capacity in Boardman, OR into the BPA transmission grid per Transmission Service Request via the Open Access Tariff; (2) Complete the integration of new 536MW generation capacity near Hermiston into the BPA transmission grid per Transmission Service Request via the Open Access Tariff; (3) Complete the integration of new 270 MW generation capacity near Tacoma into the BPA transmission grid per Transmission Service Request via the Open Access Tariff; (4) Complete the integration of new 248 and 225 MW generation capacities near Goldendale into the BPA transmission grid per Transmission Service Request via the Open Access Tariff; (5) Continue the integration of new 600MW generation capacity near Chehalis into the BPA transmission grid per Transmission Service Request via the Open Access Tariff; (6) Integrate new 1200 MW generation capacity near Starbuck into the BPA transmission grid per Transmission Service Request via the Open Access Tariff; (7) Integrate new 1300 MW generation capacity near Wallula into the BPA transmission grid per Transmission Service Request via the Open Access Tariff; (8) Perform studies to identify system impacts and needs regarding proposed new generation projects; (9) Perform environmental cleanup and other work necessary for the sale of BPA facilities; (10) Complete other projects as requested by customers.
- FY 2003: (1) Complete the integration of new 600MW generation capacity near Chehalis into the BPA transmission grid per Transmission Service Request via the Open Access Tariff; (2) Continue the integration of new 1200 MW generation capacity near Starbuck into the BPA transmission grid per Transmission Service Request via the Open Access Tariff; (3) Continue the integration of new 1300 MW generation capacity near Wallula into the BPA transmission grid per Transmission Service Request via the Open Access Tariff; (4) Perform studies to identify system impacts and needs regarding proposed new generation projects; (5) Perform environmental cleanup and other work necessary for the sale of BPA facilities; (6) Complete other projects as requested by customers.

<b>Total, Transmission Business Line – Capital . . . . .</b>	<u>200,500</u>	<u>325,000</u>	<u>430,500</u>
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## Explanation of Funding Changes From FY 2002 to FY 2003

FY 2003 vs. FY 2002 (\$000)
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### Main Grid

- Reflects increased materials and construction costs to make significant improvements and additions to the transmission system. . . . . +166,000

### Area & Customer Services

- Reflects less emphasis on customer service projects as strategic focus has changed to improvements and additions to the Main Grid facilities . . . . . -27,000

### Upgrades & Additions

- Reflects less emphasis on communications upgrades system-wide as the strategic focus has changed to improvements and additions to the Main Grid facilities. Communications related to the new facilities is included in the Main Grid projects . . . . . -23,300

### System Replacements

- Reflects less emphasis on system replacements, except for the Celilo project, as the strategic focus has changed to improvements and additions to the Main Grid facilities . . . . . -10,200

### Projects Funded in Advance

- No change . . . . . +0

Total Funding Change, Transmission Business Line - Capital . . . . .	+105,500
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# Capital Equipment/Capitalized Bond Premium

## Mission Supporting Goals and Objectives

This activity provides for the acquisition of general and dedicated special purpose capital automatic data processing (ADP) equipment, development of capitalized ADP software, and acquisition of special-use capital furniture and equipment in support of BPA's strategic objectives. This budget category provides the BPA business lines with the ability to acquire general and dedicated special purpose capital ADP equipment. This activity also provides the ability for developing capitalized ADP software, and acquiring special-use capital furniture and equipment for BPA to meet its strategic business objectives.

Bonneville incurs a bond premium whenever it repays a bond before the due date. When bonds are refinanced, the bond premiums incurred are capitalized. Historically, BPA generally has chosen to finance capitalized bond premiums with bonds issued to the U.S. Treasury, as was envisioned in the Federal Columbia River Transmission System Act of 1974.

## Funding Schedule (Accrued Expenditures)

(dollars in thousands)					
	FY 2001	FY 2002	FY 2003	\$ Change	% Change
Capital Equipment .....	17,500	26,300	24,800	-1,500	-5.7%
Capitalized Bond Premium .....	0	2,200	3,000	+800	36.4%
Total, Capital Equipment/Capitalized Bond Premium .....	17,500	28,500	27,800	-700	-2.5%

## Detailed Program Justification

(dollars in thousands)			
	FY 2001	FY 2002	FY 2003
Capital Equipment .....	17,500	26,300	24,800

- Acquire capital office furniture and equipment, capital ADP-based administrative telecommunications equipment, ADP equipment (hardware), and support capital software development for all BPA programs. Includes enhancements to BPA's Enterprise systems, designed to link key information systems throughout Bonneville and improve business processes. Current efforts include functional expansion into areas not implemented during the initial development phase.

Capitalized Bond Premium . . . . .	0	2,200	3,000
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- Continue to assess financial market and when cost-effective, refinance available bonds as prudent.

Total, Capital Equipment/Capitalized Bond Premium .	17,500	28,500	27,800
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### Explanation of Funding Changes From FY 2002 to FY 2003

FY 2003 vs. FY 2002 (\$000)
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#### Capital Equipment

- Decrease due to implementation of Business Solutions Project . . . . . -1,500

#### Capitalized Bond Premium

- Increase in anticipated bond refinancing due to evolving refinancing opportunities . . . . . +800

Total, Funding Change Capital Equipment/Capital Bond Premium . . . . .	-700
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# **Power Business Line - Operating Expense**

## **Mission Supporting Goals and Objectives**

Production includes all BPA strategic resource planning and business development, short and long-term power purchases, wheeling, electric utility marketing of resources, hedging-related costs, generation and oversight costs, including the large thermal nuclear projects. These activities identify the Administrator's load obligations, develop product plans and services to meet the needs of BPA customers, and acquire resources as needed. As a means of mitigating power market risk, BPA's Hedging Policy allows the use of financial instruments in the power, natural gas, and aluminum markets to hedge the price of electricity and reduce BPA's exposure to market fluctuations and certain index sales contract provisions.

Associated Projects provide funding for operation and maintenance costs for the FCRPS; minor additions, improvements, and replacements; and liabilities of the Corps of Engineers and Bureau of Reclamation hydroelectric projects in the Pacific Northwest, which serve many purposes. Both agencies are emphasizing efficient power production from existing facilities and improvement of the performance and availability of power units. BPA pays additional financing costs of the FCRPS facilities through its Interest Expense and Capital Transfer budget programs. BPA is responsible for the actual operations and maintenance expenditures incurred as part of the Lower Snake River Compensation Plan (LSRCP) hatcheries. Bonneville is responsible for annual payments to the Confederated Tribes of the Colville Reservation for their claims concerning their contribution to the production of hydropower by the Grand Coulee Dam in accordance with the Settlement Agreement between the United States and the Tribes (April 1994). Beginning in FY 2001, as part of Reclamation operation and maintenance costs, Bonneville is responsible for the power portion of the Green Springs Powerplant operations and maintenance costs.

Fish and Wildlife expenses provide for the protection, enhancement and mitigation of Columbia River Basin fish and wildlife due to losses attributed to the development and operation of hydroelectric projects on the Columbia River and its tributaries. BPA discharges a major portion of its fish and wildlife responsibilities pursuant to Section 4(h) of the Northwest Power Act by funding projects and activities designed to be consistent with the Planning Council's Fish and Wildlife Program. To satisfy its responsibilities under the Endangered Species Act, BPA implements measures in the biological opinions issued by the NMFS and the USFWS regarding the operations of the Federal Columbia River hydro system.

Fish and Wildlife program estimates reflect, and are consistent with, the fish and wildlife principles that originally were identified in the 1996 Fish Budget MOA.

NMFS and USFWS issued new Biological Opinions (Bos) on FCRPS operations in December 2000. The BO's require the Action Agencies (COE, BOR, and BPA) to implement actions throughout the Columbia River Basin that comprehensively address all the life stages of Endangered Species Act (ESA)-listed fish. BPA's responsibilities under the 2000 FCRPS BO's are expected to significantly escalate its Fish and Wildlife costs in future years. To plan for this expected increase, BPA incorporated a wide range of fish and wildlife costs for rate-setting purposes. Based on the 2000 FCRPS BO requirements, BPA expects to annually obligate an average of \$150 million for fish and wildlife for the rate case covering FY 2002 - 2006. This is within the range assumed in the

power rate case, which assumed an annual average of \$139 million, based on a range of \$109 - \$179 million of accrued expenses.

BPA's fish and wildlife expense funds will focus on activities that benefit Columbia River Basin fish and wildlife resources including projects designed to:

- increase survival of ESA-listed fish at FCRPS dams and reservoirs;
- increase survival of ESA-listed fish throughout their life cycle by protecting and enhancing important habitat areas;
- reform hatchery practices and use hatcheries to contribute to conservation and recovery of ESA-listed fish;
- reduce harvest-related mortality on ESA-listed fish and support sustainable fisheries; and,
- support a disciplined and well-coordinated research, monitoring, and evaluation program.

BPA is working to integrate the actions implemented in response to the 2000 FCRPS BO's with projects implemented under the Council's Fish and Wildlife Program. In the near term, BPA will use the Council's Provincial Review process as the primary vehicle for soliciting project proposals to address BO actions. Provincial Review project solicitations will identify specific BO implementation needs in conjunction with the broader non-ESA Northwest Power Act priorities. BPA also may use targeted solicitations if BO requirements are not fully satisfied through the Provincial Review's solicitations.

The FY 1997 Energy and Water Development Appropriations Bill added section 4(h)(10)(D) to the Northwest Power Act, directing the Planning Council to appoint a Scientific Review Panel "to review projects proposed to be funded through that portion of Bonneville Power Administration's fish and wildlife budget that implements the Planning Council's fish and wildlife program." And, "... in making its recommendations to BPA, the Planning Council shall consider the impact of ocean conditions on fish and wildlife populations; and shall determine whether the projects employ cost effective measures to achieve program objectives." Consequently, projects funded under Bonneville's direct program will be reviewed and prioritized as part of the Planning Council initiative process.

The Northwest Power Act created the Residential Exchange Program (REP) to extend the benefits of low-cost Federal power to Pacific Northwest electric utilities serving the residential and small farm customers of the Pacific Northwest. The 1996 Comprehensive Regional Review recommended that BPA engage in settlement discussions regarding Residential Exchange. BPA developed a Subscription Strategy based on the recommendations of the Comprehensive Review. That strategy proposed a comprehensive settlement of the REP for Investor-Owned Utilities (IOU) in the Pacific Northwest which has resulted in new contracts with regional IOUs that provide power and monetary benefits to their residential and small farm customers.

To settle the REP with the Investor-Owned Utilities, IOU customers were offered 1900 aMW in power and monetary benefits. The power was sold at a price equivalent to the priority firm power rate. The monetary benefits are calculated based on a forecast of the cost of purchasing the power in the market less the price used for sale of power to the IOU customers. All 6 regional IOUs signed contracts in the fall of 2000 implementing this settlement of the Residential Exchange. They originally were to receive 1000 aMW of power and 900 aMW in monetary benefits for FY 2002-2006, but the IOUs subsequently converted 619 aMW of power to monetary benefits. In FY 2007 the total amount of settlement benefits changes to 2200 aMW. Under the Subscription

**BPA/Power Business Line - Operating Expense**

**FY 2003 Congressional Budget**



strategy, BPA stated its intent for all of these benefit to be provided as power; however, BPA may provide either power or monetary benefits under the terms of the settlement agreements.

BPA's preference utilities, or public agency utilities, are eligible to execute new Residential Exchange Program contracts beginning in 2001, except for the nine utilities that previously executed settlement agreements for terms ending July 1, 2011. These customers are forecasted to have average system costs that are lower than the Exchange Program rate and thus would not qualify for these benefits.

The Northwest Power Act directs that expenses of the Planning Council, subject to certain limits based on forecasted BPA power sales, shall be included in BPA's annual budget to Congress. Funding for the Planning Council is provided by Bonneville and is recovered through Bonneville rates. Its major activities include the periodic preparation of a Northwest Conservation and Electric Power Plan (a 20-year electric energy demand and resources forecast and energy conservation program) and a Columbia River Basin Fish and Wildlife Program of loss mitigation and resource enhancement actions.

The competitive market situation is driving the need for alternatives to the traditional approaches to developing conservation resources. PBL will acquire conservation in accordance with the Northwest Power Planning Council's guidance and act as a catalyst for energy efficiency and direct application renewables. The resources will provide a vital component of PBL's diversified resource portfolio: (1) meet conservation targets; (2) achieve a least cost resource mix; (3) dampen the cost impacts of power purchases; (4) avoid the costs of ramping programs and infrastructure up and down; (5) extend the value of the FCRPS to customers; (6) cushion the need for rate increases; and (7) build the region's resource portfolio with conservation and direct application renewables.

### **Funding Schedule (Accrued Expenditures)**

	(dollars in thousands)				
	FY 2001	FY 2002	FY 2003	\$ Change	% Change
Production . . . . .	2,980,900	1,875,900	1,685,300	-190,600	-10.2%
Associated Projects Costs.	195,400	209,800	223,700	+13,900	6.6%
Fish & Wildlife. . . . .	102,800	150,000	150,000	0	0%
Residential Exchange . . . .	68,100	143,800	143,800	0	0%
Planning Council . . . . .	7,300	8,300	8,300	0	0%
Conservation and Energy Efficiency	30,900	35,400	34,900	-500	-1.4%
Total, Power Services - Operating Expense . . . . .	3,385,400	2,423,200	2,246,000	-177,200	-7.3%

## Detailed Program Justification

(dollars in thousands)		
FY 2001	FY 2002	FY 2003

<b>Production .....</b>	2,980,900	1,875,900	1,685,300
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Short-Term Power Purchases/Pacific Northwest Coordination Agreement (PNCA) Interchange: Includes purchase power for efficient operation of the power system, fish mitigation and resale. Due to higher and more volatile market prices in 2001, Bonneville was subject to much greater demand for service from its customers. This increase in load demand over the rate period indicates that Bonneville may need to make substantially greater power purchases in the market. In order to mitigate a larger rate increase, FY 2002 and FY 2003 expenses include \$484 million, and \$341 million respectively, in IOU and DSI load buy downs. See additional discussion of the evolving power market included in "Significant Accomplishments and Program Shifts" included in the Program Mission section of this budget.

Under terms of the PNCA, BPA makes interim cash payments to other generating utilities for power received as interchange energy. Likewise, BPA receives interim cash payments from other generating utilities for power that BPA delivers as interchange energy. Interchange energy is an energy exchange between utilities to supply all or a part of any deficiency between a utility's actual energy capability and its firm energy load carrying capability. The energy is then returned to the supplying utility at a time that it has a deficiency.

- **Power Scheduling/Marketing:** Schedule and market (buy/sell) electric energy with BPA customers and the Pacific Northwest's interconnected utilities. Scheduling includes PBL's implementation of physical and memo power schedules and associated transmission schedules, implementation of Electronic Tagging (ETag) in accordance with NERC, and in accordance with FERC, implementation of electronic scheduling and the RTO as it evolves. PBL's acquisition of a new Transaction Scheduling System will facilitate the above needs. Place major emphasis on marketing for support of the Biological Opinion of the Fish and Wildlife Program.
- **Trojan:** Continue termination and decommissioning of BPA's 30 percent share of the Trojan Nuclear Plant. Due to a delay in a major decommissioning project, activity at Trojan decreased for FY 2001 and should stay at a lower level through FY 2002. As work on the delayed project is restarted, activity should increase in FY 2003.
- **Columbia Generating Station (WNP-2):** Continue to acquire full capability of Columbia Generating Station (Columbia). Columbia has now completed the transition to a 24-month fuel cycle from a 12-month cycle. Changes are due to increased fuel costs associated with the transition and other major capital projects scheduled for out years. Outages occurred in FY 2001 and will occur in FY 2003.
- **WNP-1/WNP-3:** Continue to fulfill contractual obligations for WNP-1 and WNP-3.

(dollars in thousands)		
FY 2001	FY 2002	FY 2003

■ Long Term Power Purchases and Wheeling:

FY 2001 and FY 2002: Continue to acquire 100 percent of the Idaho Falls, Cowlitz Falls, Wauna and BPA's share of Foote Creek 1 project output. Continue contract payments on four billing credit projects. Continue to acquire 100 percent of the output of the Foote Creek 2 and 4 wind project and a 15-kW share of the output from the Solar Ashland Project.

FY 2003: Continue to acquire 100 percent of the Idaho Falls, Cowlitz Falls, Wauna and BPA's share of Foote Creeke 1 project output. Continue contract payments on four billing credit projects. Continue to acquire 100 percent of the output of the Foote Creek 2 and 4 wind projects and a 15-kW share of the output from the Solar Ashland Project. BPA decided to execute the contracts and acquire all of the output from the Condon and Stateline wind projects, and may acquire a portion of the output from the Maiden and Blackfeet wind projects. Make decisions whether to acquire output from seven additional wind projects.

■ Generation & Oversight:

FY 2001: Completed the NEPA process and issued a Record of Decision for the Condon Wind Project. Issued a Record of Decision for the Fourmile Hill Geothermal Project. Initiated additional renewable resource acquisitions.

FY 2001-2002: Continue to provide oversight of all contracts signed to date. Provide oversight of large thermal generating plants from which BPA purchases capability to insure that all BPA approval rights are protected; coordinate, communicate and administer agreements, issues and programs between BPA and the project owners. Make decision whether to purchase a share of output from the Stateline Wind Project. Initiate additional renewable resource acquisitions. Continue or initiate NEPA process for 10 new wind projects.

FY 2003: Continue to provide oversight of all contracts signed to date. Provide oversight of large thermal generating plants from which BPA purchases capability to insure that all BPA approval rights are protected; coordinate, communicate and administer agreements, issues and programs between BPA and the project owners. Complete NEPA process and make decisions whether to acquire wind projects initiated in FY 2001.

<b>Associated Project Costs</b> .....	195,400	209,800	223,700
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- Support FCRPS project costs and work to strengthen relationships to improve project support and better understand project costs. This helps to maintain FCRPS system integrity and to attain BPA's strategic business objectives.

(dollars in thousands)		
FY 2001	FY 2002	FY 2003

- **Bureau of Reclamation:**  
FY 2001: Continue direct funding Bureau O&M power activities.  
FY 2002: Continue direct funding Bureau O&M power activities.  
FY 2003: Continue direct funding Bureau O&M power activities.
- **Corps of Engineers:**  
FY 2001: Continue direct funding Corps O&M power activities.  
FY 2002: Continue direct funding Corps O&M power activities.  
FY 2003: Continue direct funding Corps O&M power activities.

**Fish and Wildlife** ..... 102,800    150,000    150,000

In a manner consistent with the assumptions used for the FY 2002-2006 power rate case:  
**Anadromous Fish:** Continue implementing projects which support Endangered Species Act listed species and other measures called for under the 2000 FCRPS NMFS BO. Use the Council's Provincial Review and Sub-basin Planning processes to identify activities for implementation. Implement and develop activities that protect and enhance tributary and estuary habitat, improve mainstem habitat on an experimental basis, reduce potentially harmful hatchery practices, and contribute to sustainable fisheries. These activities have been selected in response to the Northwest Power Act section 2(6) to "protect, mitigate and enhance fish and wildlife including related spawning grounds and habitat on the Columbia River and its tributaries."

**Resident Fish:** Implement activities to determine the impacts of the FCRPS on bull trout and mitigate for those impacts, and promote the reproduction and recruitment of Kootenai River white sturgeon. These activities have been selected in response to the U. S. Fish and Wildlife Service 2000 FCRPS BO and the Northwest Power Act to "protect, mitigate and enhance fish and wildlife including related spawning grounds and habitat on the Columbia River and its tributaries."

- Continue mitigation in resident fish for anadromous losses (substitution), mitigation for reservoir operation impacts to resident fish, and continue to refine, quantify, and delineate the difference between the two.
- **Wildlife:** Continue the current program including funding for wildlife actions resulting from Planning Council Fish and Wildlife Program amendments for wildlife mitigation. These activities have been selected in response to the Northwest Power Act to "protect, mitigate and enhance fish and wildlife including related spawning grounds and habitat on the Columbia River and its tributaries."

**Residential Exchange** ..... 68,100    143,800    143,800

- Includes negotiated contract settlement agreement costs consistent with assumptions in the power rate case and subscription strategy.

(dollars in thousands)			
	FY 2001	FY 2002	FY 2003
<b>Planning Council</b> .....	7,300	8,300	8,300
<b>Conservation and Energy Efficiency</b> .....	30,900	35,400	34,900

- Close out the Legacy conservation resource acquisition contracts, which support BPA's contractual obligation to serve customer load growth. As part of the power subscription strategy and the 2002 Power Rate Case, BPA implemented a conservation rate credit system for utility customers.

Provide credible, unbiased information or technical or financial support to conservation purposes. As an agency of the DOE, and with independent responsibilities based on its authorizing legislation, BPA has a statutory responsibility to provide support to certain conservation objectives which are governmental in nature, such as assisting in the development of emerging technologies and providing unbiased information to consumers. BPA is participating with other regional entities to support market transformation and development activities that meet the needs of BPA customers and create business opportunities for the private sector in the Pacific Northwest.

- Seek to make the existing energy efficiency marketplace larger by helping to remove barriers which customers face in the development of conservation projects. This opens up possibilities that have previously been foreclosed, thus serving to "grow the pie." This activity must be self-financing; that is, payments from customers must cover all of the costs of performing the service.
- Create and enhance markets for energy efficiency and end-use renewables through delivery of public benefits. Promote the development and implementation of new energy efficiency technologies. Provide leadership and collaborative funding for market transformation initiatives. Continue activities being performed through the regionally-funded Northwest Energy Efficiency Alliance through a multi-party agreement signed in 2000.

<b>Total, Power Business Line – Operating Expense . . .</b>	<u>3,385,400</u>	<u>2,423,200</u>	<u>2,246,000</u>
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## Explanation of Funding Changes from FY 2002 to FY 2003

	FY 2003 vs. FY 2002 (\$000)
<b>Production</b>	
■ Decrease in short-term power purchases due to expected lower market prices, especially as more generation comes on-line in the region. ....	-190,600
<b>Associated Project Costs</b>	
■ Increase due to improvements, replacements, and minor additions .....	13,900
<b>Fish and Wildlife</b>	
■ No change. ....	0
..	
<b>Residential Exchange</b>	
■ No change. ....	0
..	
<b>Planning Council</b>	
■ No change. ....	0
..	
<b>Conservation and Energy Efficiency</b>	
■ Minor decreased costs due to program funding requirements .....	-500
<b>Total Funding Change, Power Business Line - Operating Expense .....</b>	<b>-177,200</b>

# Transmission Business Line - Operating Expense

## Mission Supporting Goals and Objectives

This activity provides for the transmission system services of engineering, operations and maintenance for BPA's electric transmission system of 15,000 circuit miles (24,135 circuit kilometers) of lines, 324 substations, and associated power system control and communication facilities with an invested cost of more than \$4.8 billion. Primary strategies of this program are: 1) maintain the safety and reliability of the transmission system, consistent with the strategic performance goals ER 9-3 and ER 9-1; 2) increase the focus on customers; 3) optimize the transmission system; and 4) improve BPA's competitive position.

## Funding Schedule (Accrued Expenditures)

(dollars in thousands)					
	FY 2001	FY 2002	FY 2003	\$ Change	% Change
Engineering .....	20,100	38,000	36,800	-1,200	-3.2%
Operations .....	77,600	99,300	98,500	-800	-0.8%
Maintenance .....	117,900	158,200	155,300	-2,900	-1.8%
Total, Transmission Business Line - Operating Expense .....	215,600	295,500	290,600	-4,900	-1.7%

## Detailed Program Justification

(dollars in thousands)			
	FY 2001	FY 2002	FY 2003
<b>Engineering</b> .....	20,100	38,000	36,800

Continue efforts to identify best methods for improving system reliability and maintenance practices, and continue cost reduction efforts by identifying opportunities for low cost reinforcement and voltage support of the existing transmission system.

- R&D: Conduct in-house transmission system research and development, including (1) studies on reliability, HVDC (high voltage direct current) and HVAC (high voltage alternating current) outage reduction, (2) methods to update existing facilities and reduce maintenance costs including reliability-centered monitoring and recording methods for analysis.

(dollars in thousands)

FY 2001	FY 2002	FY 2003
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- **Technical Support:** Provide technical support activities, such as transmission system planning and studies to optimize portions of the system.
- **Capital-to-Expense Adjustments:** Annually, BPA analyzes its outstanding capital work orders to assess whether they should be expensed.
- **Reimbursable Transactions:** BPA enters into written agreements with Federal and non-Federal entities that have work or services to be performed by BPA staff at the expense of the benefiting utilities. The projects must be beneficial, under agreed upon criteria, to BPA operations and to the Federal or non-Federal entity involved. Additionally, these activities contribute to more efficient or reliable construction of the Federal transmission system or otherwise enhance electric service to the region.
- **Leased Facilities:** When operationally feasible, BPA leases delivery facilities and voltage support facilities to support the transmission system instead of building or purchasing new assets.

<b>Operations</b> .....	77,600	99,300	98,500
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- **FY 2001:** Continued to operate within parameters of regional transmission authorities. Prepared for increased complexity of outage scheduling, transmission scheduling, and dispatching as well as impact of an expected high attrition rate of skilled operation dispatching workforce by recruiting and training apprentices and skilled replacements. Continued development and implementation of business systems and tools. Participated in planning and preparation for potential establishment of an RTO.
- **FY 2002:** Continue to operate within parameters of regional transmission authorities. Continue preparation for increased complexity of outage scheduling, transmission scheduling, and dispatching as well as impact of an expected high attrition rate of skilled operation dispatching workforce by recruiting and training apprentices and skilled replacements. Continue development and implementation of business systems and tools. Participate in planning and preparation for potential establishment of an RTO.
- **FY 2003:** Continue to operate within parameters of regional transmission authorities. Continue preparation for increased complexity of outage scheduling, transmission scheduling, and dispatching as well as impact of an expected high attrition rate of skilled operation dispatching workforce by recruiting and training apprentices and skilled replacements. Continue development and implementation of business systems and tools. Participate in planning and preparation for potential establishment of an RTO.



(dollars in thousands)

FY 2001	FY 2002	FY 2003
---------	---------	---------

- Substation Operations: Perform operations functions necessary to provide electric service to customers and to protect the Federal investment in electric equipment. Includes equipment adjustments, switching lines and equipment during emergencies or maintenance, isolating damaged equipment, restoring service to customers, and inspecting equipment, reading meters, et cetera.
- Power System Control & Dispatching: Includes central dispatching, control, and monitoring of the electric operation of the Federal transmission system. Also includes load, frequency, and voltage control of Federal generating plants, and operation of the system control and data computers at Dittmer and Munro Control Centers.
- Operations Standards & Engineering: Includes analyzing system loads, voltage levels, outage information, stability levels and other data, and making policy recommendations for system operations and related affairs. Provides for development of control center requirements for centralized automation of substations and generation, and BPA participation with other utilities in developing utility operating standards and guides.
- Marketing, Sales, & Services: Provides management and direction of transmission rates, provides business strategy in marketing of transmission and ancillary products and services of the Transmission Business Line.
- Transmission Scheduling: Provides open access to the Federal transmission system consistent with transmission tariffs approved by FERC. Schedule and market transmission capacity to BPA customers, California ISO and Pacific Northwest's interconnected utilities. Manages the reservations and scheduling of all transmission services associated with the transmission tariffs.

<b>Maintenance</b> .....	117,900	158,200	155,300
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In all aspects of maintenance, Bonneville is shifting to the implementation of reliability-centered maintenance practices. This change is focused on improving system reliability and significantly reducing maintenance costs.

Access road maintenance costs are expected to increase dramatically as Bonneville deals with the aging roads system and environmental constraints associated with construction, enhancement, and maintenance of access roads. The BPA transmission system encompasses up to 50,000 miles of access roads. Cost increases over current levels could be as much as \$1,000,000 annually.

(dollars in thousands)

FY 2001	FY 2002	FY 2003
---------	---------	---------

- FY 2001: Continued to refine Reliability Center Maintenance (RCM) practices at all of BPA's O&M regions. Continued to improve performance to meet System Average Interruption Frequency Index (SAIFI) and System Average Interruption Duration Index (SAIDI) targets. Continued efforts to achieve the SAIFI and SAIDI targets of no control chart violations for circuit importance categories 1-2 (highest importance), and not more than one violation for category 4. Control charts are statistically-based graphs which illustrate variability in performance. Utilized retention and recruitment incentives to ensure succession of the current work force and remain competitive as an employer in the utility industry. This included increased benefits for hourly employees as part of a Columbia Power Trades Council (CPTC) agreement to bring our wages in line with the public sector. Increased outage scheduling planning to increase customer satisfaction. Continued high levels of vegetation management.
- FY 2002: Continue to refine RCM practices at all of BPA's O&M regions. Continue to improve performance to meet SAIFI and SAIDI targets as explained above. Continue to prepare for the impact of an expected high attrition rate among BPA's aging workforce by recruiting apprentices and replacements for critical minimum crew size workload positions. Increase outage-scheduling planning to increase customer satisfaction. Continue high levels of vegetation management. Increase access road work to provide reliable access to facilities and ensure environmental compliance.
- FY 2003: Continue to refine RCM practices at all of BPA's O&M regions. Continue to improve performance to meet SAIFI and SAIDI targets as explained above. Continue to prepare for the impact of an expected high attrition rate among BPA's aging workforce by recruiting apprentices and replacements for critical minimum crew size workload positions. Increase outage-scheduling planning to increase customer satisfaction. Continue high levels of vegetation management. Increase access road work to provide reliable access to facilities and ensure environmental compliance.
- Transmission Line Maintenance: Maintain and repair nearly 24,135 km (15,000 circuit miles) of high voltage transmission lines, of which over 6,436 km (4,000 circuit miles) are 500-kV transmission EHV (extra-high voltage), which is two and one-half times more labor-intensive than lower transmission voltages, although more efficient in transmission of power. This responsibility includes maintaining transmission rights of way to ensure system reliability, safety and environmental compliance.
- Substation Maintenance: Provides for service and repair of the transmission system power equipment located at more than 360 work sites annually.

(dollars in thousands)

FY 2001	FY 2002	FY 2003
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- **System Protection Maintenance:** Provides for the maintenance of relaying and metering equipment used to control and protect the electrical transmission system and to meter energy transfers for the purpose of revenue billing. Additionally, field-engineering services provide technical advice and assure the correct operation of power system relaying and special control systems used to support interregional energy transmission capabilities.
- **Power System Control Maintenance:** Provides for the testing, repair, and field engineering support of BPA's highly complex equipment, communications and control systems, including seven major microwave systems and other critical communications and control systems that support the power system.
- **Non-Electric Plant Maintenance:** Provides for the maintenance of BPA's non-electric facilities. Includes site, building, and building utility maintenance; custodial services; station utility; and other maintenance service activities on BPA-owned or BPA-leased non-electric facilities.
- **Maintenance Standards & Engineering:** Provides for establishing, monitoring, and updating system maintenance standards, policies, and procedures; and for the review and update of long-range plans for maintenance of the electric power transmission system.

<b>Total, Transmission Business Line - Operating Expense .....</b>	<b>215,600</b>	<b>295,500</b>	<b>290,600</b>
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## Explanation of Funding Changes From FY 2002 to FY 2003

	FY 2003 vs. FY 2002 (\$000)
<b>Engineering</b>	
■ Minor decrease reflects lower administrative costs . . . . .	-1,200
<b>Operations</b>	
■ Minor decrease primarily due to rate case estimates of lower administrative costs due to assumed efficiencies. . . . .	-800
<b>Maintenance</b>	
■ Minor decrease primarily due to rate case estimates of lower administrative costs due to assumed efficiencies. . . . .	-2,900
Total Funding Change, Transmission Business Line – Operating Expense. .	-4,900

## **Interest, Pension and Post-retirement Benefits - Operating Expense and Capital Transfers**

### **Operating Expense Mission Supporting Goals and Objectives**

Interest expense provides for the payment of interest due on FCRPS debt. This consists of capital investment in FCRPS hydroelectric generating and transmission facilities of BPA, the Corps and the Bureau. Investments were financed by Congressional appropriations and BPA borrowings from the U.S. Treasury. BPA repays FCRPS debt through its power sales and transmission services revenues.

Since receiving Treasury borrowing authority in 1974 under the Transmission System Act, all BPA borrowing has been at market rates. As of October 1, 1996, all of BPA's repayment obligations on FCRPS appropriated investment (Corps and Bureau FCRPS investment and BPA investment financed with appropriations prior to the Transmission System Act) which were unpaid as of September 30, 1996, were restructured and assigned new current-market interest rates. The Bonneville Appropriations Refinancing Act of 1996 (Act) called for resetting (reducing) the unpaid principal of FCRPS appropriations and reassigning (increasing) interest rates. New principal amounts were established as of the beginning of FY 1997 at the present value of the principal and annual interest payments BPA would make to the U.S. Treasury for these obligations in the absence of the legislation, plus \$100 million. The new principal amounts are then assigned new interest rates based on the Treasury yield curve rates prevailing at the end of FY 1996. BPA's outstanding repayment obligations on appropriations at the end of FY 1996 were \$6.7 billion with a weighted average interest rate of 3.4 percent. The refinancing reduced the principal amount to \$4.1 billion with a weighted average interest rate of 7.1 percent. Implementation of the refinancing took place in 1997 after audited actual financial data was available. As called for in the legislation, BPA submitted its calculations and interest rate assignments implementing the Act to Treasury for their review and approval. Treasury approved the implementation calculations in July 1997. The Act also calls for all future FCRPS appropriations to be assigned prevailing Treasury yield curve interest rates.

Interest estimates are a direct function of costs of Treasury borrowing to BPA, repayment status of outstanding FCRPS investments, and projected additions to FCRPS plant in service. The interest cost estimates below include the impact of BPA's appropriation refinancing legislation.

The Administration is proposing legislation to require all federal agencies beginning in FY 2003 to pay the full Government share of the accruing cost of retirement for current CSRS employees. The legislation also requires agencies to pay the full accruing cost of post-retirement health benefits for current civilian employees and the post-retirement health costs of all retirees.

Bonneville Pension and Post-retirement Benefits costs, consistent with the proposed legislation, are estimated as follows: \$14.2 million in FY 2001, \$16.6 million in FY 2002, \$17.0 million in FY 2003, \$18.7 million in FY 2004, \$18.9 million in FY 2005, \$19.2 million in FY 2006, and \$19.5 million in FY 2007. The FY 2001 and FY 2002 estimates are comparable to the FY 2003 estimate. These costs would be paid to a receipt account with the Office of Personnel Management. These estimates include a small DOE allocation of Pension and Post-retirement Benefit costs associated with the General Services Administration and the U.S. Geological Survey for FYs 2001-2003. The associated Corps, Bureau, and USFW costs are assumed to be paid by the respective agencies with the power related portion of these costs reimbursed through direct funding by Bonneville. These estimates are subject to revision following additional review.

Bonneville has been paying its unfunded liability of the CSRS and post-retirement benefits into the General Fund of the U.S. Treasury (receipt account 892889) since FY 1998. These payments are consistent with the FY 2001 Administration's budget which assumed Bonneville would prospectively cover the full unfunded liability that accrues in fiscal years after FY 1997 of the Civil Service Retirement and Disability Fund (Disability Fund), the Employees Health Benefits Fund (Health Fund) and the Employees Life Insurance Fund (Insurance Fund) that it had not covered prior to FY 1998. As part of the FY 2001 Administration's Budget, Bonneville assumed its entire CSRS cost recovery would be phased in over a ten-year period given that wholesale power and transmission rates for Bonneville were contractually frozen until the end of FY 2001 in order to meet competitive market pressures. BPA paid \$6 million and \$8 million in FYs 2000 and 2001, respectively, and the following amounts were assumed to be recovered by Bonneville through rates: \$55.2 million in FY 2002, \$35.1 million in FY 2003, \$30.9 million in FY 2004, \$26.6 million in FY 2005, \$24.5 million in FY 2006, and \$21.1 million in FY 2007. Cost estimates include Bonneville and the power related portion of Corps, Bureau of Reclamation, and the United States Fish & Wildlife Pension and Post-retirement Benefits. These estimates are subject to revision following additional review.

Pension and Post-retirement Benefit estimates in this budget for fiscal years beyond 2001 include the difference between those cost estimates currently covered through rates and being paid by Bonneville into receipt account 892889 as described above, and those costs estimated under the proposed legislation. The FY 2001 amount includes the actual amount paid to receipt account 892889.

**Funding Schedule  
(Accrued Expenditures)**

	(dollars in thousands)				
	FY 2001	FY 2002	FY 2003	\$ Change	%Change
BPA Bond Interest (Net) . . . . .	161,900	140,100	158,400	+18,300	13.1%
BPA Appropriation Interest . . . . .	87,700	66,400	63,500	-2,900	-4.4%
Corps of Engineers Appropriation Interest . . . . .	145,500	182,800	185,100	+2,300	1.3%
Lower Snake River Comp Plan Interest . . . . .	16,100	16,300	16,300	0	0%
Bureau of Reclamation Appropriation Interest . . . . .	40,400	36,400	35,200	-1,200	-3.3%
Subtotal, Interest – Operating Expense	451,600	442,000	458,500	+16,500	+3.7%
Pension & Post-retirement Benefits . . .	8,000	38,600	18,100	-20,500	-53.1%
Total, Interest, Pension and Post- retirement Benefits . . . . .	459,600	480,600	476,600	-4,000	-0.8%

**BPA/Interest, Pension and Post-Retirement  
Budget  
Benefits- Operating Expense & Capital Transfers**

**FY 2003 Congressional**

# Capital Transfers

## Mission Supporting Goals and Objectives

This activity conveys funds to the U.S. Treasury for repayment of certain FCRPS costs not included in the Associated Project Costs budget. Since capital transfers are cash transactions they are not considered budget obligations.

The FY 2001 BPA bond amortization amount includes a portion of future planned amortization consistent with BPA's capital strategy plan and debt optimization.

## Funding Schedule (Accrued Expenditures)

(dollars in thousands)					
	FY 2001	FY 2002	FY 2003	\$ Change	% Change
BPA Bond Amortization . . . . .	84,700	174,700	247,300	+72,600	+41.6%
Bureau Bond Amortization . . . . .	19,500	17,400	0	-17,400	-100%
BPA Appropriation Amortization 1/.	73,000	42,900	0	-42,900	-100%
Corps Appropriation Amortization	59,100	4,000	0	-4,000	-100%
Total, Capital Transfers . . . . .	236,300	239,000	247,300	+8,300	+3.5%

1/ Includes \$26 million Tenaska reimbursement payment for FY 2001.



# **Energy Resources**

## **Corporate Context**

Energy is the vital force powering business, manufacturing, and movement of goods and services throughout the country. The United States spends over one-half trillion dollars annually for energy, and our economic well-being depends on reliable, affordable supplies of clean energy.

The Energy Resources goal establishes the overarching purpose of the Department's energy programs. The focus of three of the Department's program offices is on energy technology research and development (R&D): Office of Fossil Energy, Office of Nuclear Energy, and the Office of Energy Efficiency and Renewable Energy. In addition to energy technology R&D, the Department's Energy Information Administration develops and publishes energy statistics and forecasts, the Department also delivers Federal hydroelectric power to the consumer through the Power Marketing Administrations (PMAs).

## **Energy Resources Goal**

Increase global energy security, maintain energy affordability, and reduce adverse environmental impacts associated with energy production, distribution, and use by developing and promoting advanced energy technologies, policies, and practices that efficiently increase domestic energy supply, diversity, productivity, and reliability.

## **Strategic Objective**

The Energy Resources business line goal is supported by the following strategic objective of the PMAs:

ER9: Ensure Federal hydropower is marketed and delivered while passing the North American Electric Reliability Council's Control Compliance Ratings, meeting planned repayment targets, and achieving a recordable accident frequency rate at or below our safety performance standard.

## **Performance Indicators**

North American Electric Reliability Council's (NERC) control compliance ratings

Repayment of Federal Power Investments

Recordable Accident Frequency Rate

# **Bonneville Power Administration**

## **Executive Budget Summary**

### **Mission**

Bonneville Power Administration (Bonneville) is the Department of Energy's (DOE) electric power marketing administration for the Federal Columbia River Power System (FCRPS). Bonneville's mission is to meet its public responsibilities through commercially successful businesses. Bonneville's business strategies to fulfill its mission can be summarized as: meeting the electric energy market price; managing costs to be competitive in providing services to customers; strengthening Bonneville's financial position; and reorienting the organization to be responsive, flexible and competitive.

Bonneville's success in the marketplace supports the achievement of its vital responsibilities for fish and wildlife, energy conservation, renewable resources, and low-cost power for the people of the Pacific Northwest. Success is achieved by satisfying its customers and enhancing the economic and environmental health of the region. Bonneville values the individual diversity, entrepreneurial spirit, personal responsibility, and public service of its workers.

Bonneville provides electric power (about forty-five percent of the electricity consumed in the region), transmission (about three-fourths of the region's high voltage transmission capacity), and energy efficiency throughout the Pacific Northwest, a 300,000 square mile service area. Bonneville markets the electric power produced from 30 Federal hydro projects in the Pacific Northwest owned by the U.S. Army Corps of Engineers (Corps) and the U.S. Department of Interior, Bureau of Reclamation (Bureau), and also acquires non-Federal power to meet the needs of its customer utilities.

Congress created Bonneville in 1937 as part of the Bonneville Project Act, providing the foundation for Bonneville's statutory utility responsibilities and authorities. In 1974, passage of the Federal Columbia River Transmission System Act (Transmission System Act) placed Bonneville under provisions of the Government Corporation Control Act (31 U.S.C. 9101-9110). The Legislation provided Bonneville with "self-financing" authority and established the Bonneville Fund, a revolving fund, allowing Bonneville to use its revenues from electric ratepayers to directly fund all programs and to sell bonds to the U.S. Treasury to finance the region's high-voltage electric transmission system requirements. In 1980, enactment of the Pacific Northwest Electric Power Planning and Conservation Act (Northwest Power Act) expanded Bonneville's utility obligations and responsibilities to encourage electric energy conservation and develop renewable energy resources, and protect, mitigate and enhance the fish and wildlife of the Columbia River and its tributaries. In support of these expanded responsibilities, Bonneville's Treasury borrowing authority was expanded to allow the sale of bonds to finance conservation and other resources and to carry out fish and wildlife capital improvements.

Bonneville's program is mandatory and nondiscretionary. It receives no annual appropriations from Congress. Bonneville funds the expense portions of its budget and repays the Federal investment in the

FCRPS with revenues from electric rates. Bonneville is authorized to sell bonds to the Treasury up to a cumulative outstanding total of \$3.75 billion (permanent, indefinite borrowing authority). Through FY 2001, Bonneville has returned approximately \$17.1 billion to the Treasury for payment of FCRPS O&M (about \$2.7 billion), interest (about \$9.7 billion), and amortization (about \$4.9 billion) of appropriations and bonds. Bonneville made its full FY 2001 payment of \$729 million, including \$57 million in accelerated amortization from that stated in the Final 1996 Rate Case, and with over \$590 million in Fish Credits. For FY 2002, Bonneville plans to pay the Treasury \$730 million, of which \$239 million is to repay investment principal, \$452 million is for interest, and \$39 million is for Pension and Post-retirement Benefits. The FY 2003 Treasury payment is currently estimated at \$736 million.

Bonneville's FY 2003 budget has been prepared on the basis of its major areas of activity, Power and Transmission. This structure supports Bonneville's ability to become more competitive in the rapid restructuring of the deregulated wholesale electric energy market. This industry deregulation stems largely from the 1992 Energy Policy Act and ensuing Federal Energy Regulatory Commission (FERC) orders (FERC Orders 888 and 889) requiring separation of utility power and transmission functions. As a Federal agency, Bonneville is not subject to FERC jurisdiction, but chooses to comply with the FERC orders because it views compliance as essential to successfully compete in the current and future electric power market. Further, Bonneville supports DOE's October 1995 "Power Marketing Administration Open Access Policy." This budget reflects Bonneville's functional separation of power and transmission and its accounting and budgetary implementation of major activities.

## **Strategic Objective**

ER9: Ensure Federal hydropower is marketed and delivered while passing the North American Electric Reliability Council's (NERC) Compliance Ratings, meeting planned repayment targets, and achieving a recordable accident frequency rate at or below our safety performance standard.

This strategic objective is supported by the Program Strategic Performance Goals that follow:

ER9-1: Maintain reliability in the evolving electric utility industry.

ER9-2: Establish and meet annual repayment targets for each Federal power system.

ER9-3: Ensure everyone at Bonneville is aware of, committed to, and has the tools to work safely.

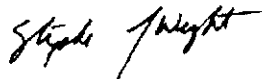
## **Strategy**

Bonneville's FY 2003 budget incorporates the budget decisions that Bonneville has made to remain competitive in the electric utility industry in the Pacific Northwest. These budget estimates, however, are subject to continual change due to rapidly changing economic and institutional conditions in the evolving competitive electric utility industry in the Pacific Northwest.

The following table provides a summary of accrued expenditures.

**FUNDING SUMMARY (accrued expenditures in thousands of dollars)**

	FY 2001	FY 2002	FY 2003
<b>CAPITAL INVESTMENTS</b>			
Power Business Line	\$ 81,800	\$165,700	\$197,500
Transmission Business Line	\$182,700	\$300,000	\$405,500
Capital Equipment & Bond Premium	\$ 17,500	\$ 28,500	\$ 27,800
<del>Capital Equipment &amp; Bond Premium</del>	<del>\$282,000</del>	<del>\$494,200</del>	<del>\$630,800</del>
Accrued expenditures will require budget obligations of	\$282,000	\$494,200	\$630,800
<b>Operating Expenses</b>	<b>\$3,030,600</b>	<b>\$3,199,300</b>	<b>\$3,078,200</b>
Projects Funded in Advance	\$17,800	\$25,000	\$25,000
 CAPITAL TRANSFERS (cash)	 \$236,300	 \$239,000	 \$247,300
BPA NET OUTLAYS	\$624,000	-\$102,000	-\$5,000
BPA STAFFING (FTE)	2,880	3,259	3,278



Stephen J. Wright  
Administrator and Chief Executive Officer

Date 1/24/02

# DIRECT FUNDED EXPENSE BUDGET DETAIL BY OFFICE

(as of 07/xx/02, \$000)

	FY 2001 ACTUALS	FY 2002 FYTD	FY 2002 ALLOC	FY 2003	FY 2004	FY 2005	FY 2006
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
<b>A EXECUTIVE OFFICE</b>							
PERSONNEL COMPENSATION							
RETENTION ALLOWANCE							
AWARDS							
TRAVEL & TRAINING							
SERVICE CONTRACTS							
OTHER CONTRACTS							
CFTE CONTRACTS							
OTHER COSTS							
<b>TOTAL</b>							
<b>C EMPLOYEE &amp; BUSINESS RESOURCES</b>							
PERSONNEL COMPENSATION							
RETENTION ALLOWANCE							
AWARDS							
TRAVEL & TRAINING							
SERVICE CONTRACTS							
OTHER CONTRACTS							
CFTE CONTRACTS							
OTHER COSTS							
<b>TOTAL</b>							
<b>CCSHARED SERVICES</b>							
PERSONNEL COMPENSATION							
RETENTION ALLOWANCE							
AWARDS							
TRAVEL & TRAINING							
SERVICE CONTRACTS							
OTHER CONTRACTS							
CFTE CONTRACTS							
OTHER COSTS							
<b>TOTAL</b>							

DIRECT FUNDED EXPENSE BUDGET DETAIL BY OFFICE

(as of 07/xx/02, \$000)

FY 2001 ACTUALS	FY 2002 FYTD	FY 2002 ALLOC	FY 2003	FY 2004	FY 2005	FY 2006
(a)	(b)	(c)	(d)	(e)	(f)	(g)

K DEPUTY ADMINISTRATOR

PERSONNEL COMPENSATION

RETENTION ALLOWANCE

AWARDS

TRAVEL & TRAINING

SERVICE CONTRACTS

OTHER CONTRACTS

CFTE CONTRACTS

OTHER COSTS

TOTAL

L GENERAL COUNSEL

PERSONNEL COMPENSATION

RETENTION ALLOWANCE

AWARDS

TRAVEL & TRAINING

SERVICE CONTRACTS

OTHER CONTRACTS

CFTE CONTRACTS

OTHER COSTS

TOTAL

TOTAL


**BONNEVILLE POWER ADMINISTRATION**  
**BPA STATUS of BORROWING**  
**PROPOSED LEGISLATION 11**  
(in millions of dollars)

BP-4A

Fiscal Year

	2001				2002			
	Net Capital		Net Bonds		Net Capital		Net Bonds	
	Net Capital	Obs Subject	Net Capital	Bonds Out-	Net Capital	Obs Subject	Net Capital	Bonds Out-
	Capital	to BA	Capital	standing	Capital	to BA	Capital	standing
	Obs		Expend.		Obs		Expend.	
<b>Cum. - Start-of-Year: 1974 Act</b>	<b>1,675</b>		<b>1,675</b>		<b>1,790</b>		<b>1,790</b>	
<b>Start-of-Year: 1980 Act</b>	<b>811</b>		<b>811</b>		<b>893</b>		<b>893</b>	
<b>Start-of-Year: Proposed</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>Start-of-Year: Total</b>	<b>2,486</b>	<b>2,444</b>	<b>2,486</b>	<b>2,488</b>	<b>2,683</b>	<b>2,641</b>	<b>2,683</b>	<b>2,663</b>
<b>Plus: Annual Increase 2/</b>								
<b>Annual Increase: 1974 Act</b>	<b>200</b>		<b>200</b>		<b>329</b>		<b>329</b>	
<b>Annual Increase: 1980 Act</b>	<b>82</b>		<b>82</b>		<b>166</b>		<b>166</b>	
<b>Annual Increase: Proposed</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>Annual Borrowing A. Increase</b>	<b>282</b>	<b>282</b>	<b>282</b>		<b>495</b>	<b>495</b>	<b>495</b>	
<b>Treasury Borrowing (Cash)</b>				<b>260</b>				<b>495</b>
<b>Less:</b>								
<b>Bond Amortization: 1974 Act</b>	<b>85</b>		<b>85</b>		<b>89</b>		<b>89</b>	
<b>Bond Amortization: 1980 Act</b>	<b>0</b>		<b>0</b>		<b>86</b>		<b>86</b>	
<b>Bond Amortization: Proposed</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>Total BPA Bond Amortization</b>	<b>85</b>	<b>85</b>	<b>85</b>	<b>85</b>	<b>175</b>	<b>175</b>	<b>175</b>	<b>175</b>
<b>Net Increase/(Decrease):</b>								
<b>1974 Act</b>	<b>115</b>		<b>115</b>		<b>240</b>		<b>240</b>	
<b>1980 Act</b>	<b>82</b>		<b>82</b>		<b>80</b>		<b>80</b>	
<b>Proposed Act</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>Total</b>	<b>197</b>	<b>197</b>	<b>197</b>	<b>175</b>	<b>320</b>	<b>320</b>	<b>320</b>	<b>320</b>
<b>Cum. - End-of-Year: 1974 Act</b>	<b>1,790</b>		<b>1,790</b>		<b>2,030</b>		<b>2,030</b>	
<b>End-of-Year: 1980 Act</b>	<b>893</b>		<b>893</b>		<b>973</b>		<b>973</b>	
<b>End-of-Year: Proposed</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>End-of-Year: Total</b>	<b>2,683</b>	<b>2,641</b>	<b>2,683</b>	<b>2,663</b>	<b>3,003</b>	<b>2,961</b>	<b>3,003</b>	<b>2,983</b>
<b>Total Borrowing Authority 3/</b>				<b>1,087</b>				<b>767</b>
<b>Total Legislated</b>								
<b>Borrowing Authority 3/</b>				<b>3,750</b>				<b>3,750</b>

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This budget submission does not reflect potential private, non-federal and joint financing of capital investment projects.

**BONNEVILLE POWER ADMINISTRATION  
BPA STATUS of BORROWING  
PROPOSED LEGISLATION 1/**  
(in millions of dollars)

BP-4B

	2003				2004			
	Net Capital		Bonds		Net Capital		Bonds	
	Net Capital Obs	Subject to BA	Net Capital Expend.	Out-standing	Net Capital Obs	Subject to BA	Net Capital Expend.	Out-standing
<b>Cum. - Start-of-Year: 1974 Act</b>	<b>2,030</b>		<b>2,030</b>		<b>2,313</b>		<b>2,313</b>	
<b>Start-of-Year: 1980 Act</b>	<b>973</b>		<b>973</b>		<b>1,073</b>		<b>1,073</b>	
<b>Start-of-Year: Proposed</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>Start-of-Year: Total</b>	<b>3,003</b>	<b>2,961</b>	<b>3,003</b>	<b>2,983</b>	<b>3,386</b>	<b>3,344</b>	<b>3,386</b>	<b>3,366</b>
<b>Plus: Annual Increase 2/</b>								
<b>Annual Increase: 1974 Act</b>	<b>433</b>		<b>433</b>		<b>446</b>		<b>446</b>	
<b>Annual Increase: 1980 Act</b>	<b>198</b>		<b>198</b>		<b>180</b>		<b>180</b>	
<b>Annual Increase: Proposed</b>	<b>0</b>		<b>0</b>		<b>113</b>		<b>113</b>	
<b>Annual Borrowing A. Increase</b>	<b>631</b>	<b>631</b>	<b>631</b>		<b>739</b>	<b>739</b>	<b>739</b>	
<b>Treasury Borrowing (Cash)</b>				<b>631</b>				<b>739</b>
<b>Less:</b>								
<b>Bond Amortization: 1974 Act</b>	<b>150</b>		<b>150</b>		<b>215</b>		<b>215</b>	
<b>Bond Amortization: 1980 Act</b>	<b>98</b>		<b>98</b>		<b>27</b>		<b>27</b>	
<b>Bond Amortization: Proposed</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>Total BPA Bond Amortization</b>	<b>248</b>	<b>248</b>	<b>248</b>	<b>248</b>	<b>242</b>	<b>242</b>	<b>242</b>	<b>242</b>
<b>Net Increase/(Decrease):</b>								
<b>1974 Act</b>	<b>283</b>		<b>283</b>		<b>231</b>		<b>231</b>	
<b>1980 Act</b>	<b>100</b>		<b>100</b>		<b>153</b>		<b>153</b>	
<b>Proposed Act</b>	<b>0</b>		<b>0</b>		<b>113</b>		<b>113</b>	
<b>Total</b>	<b>383</b>	<b>383</b>	<b>383</b>	<b>383</b>	<b>497</b>	<b>497</b>	<b>497</b>	<b>497</b>
<b>Cum. - End-of-Year: 1974 Act</b>	<b>2,313</b>		<b>2,313</b>		<b>2,544</b>		<b>2,544</b>	
<b>End-of-Year: 1980 Act</b>	<b>1,073</b>		<b>1,073</b>		<b>1,226</b>		<b>1,226</b>	
<b>End-of-Year: Proposed</b>	<b>0</b>		<b>0</b>		<b>113</b>		<b>113</b>	
<b>End-of-Year: Total</b>	<b>3,386</b>	<b>3,344</b>	<b>3,386</b>	<b>3,366</b>	<b>3,883</b>	<b>3,841</b>	<b>3,883</b>	<b>3,863</b>
<b>Total Borrowing Authority 3/</b>			<b>1,084</b>					<b>587</b>
<b>Total Legislated</b>								
<b>Borrowing Authority 3/</b>			<b>4,450</b>					<b>4,450</b>

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**BONNEVILLE POWER ADMINISTRATION**  
**BPA STATUS of BORROWING**  
**PROPOSED LEGISLATION 11**  
(in millions of dollars)

BP-4C

	2005				2006			
	Net Capital		Bonds		Net Capital		Bonds	
	Net Capital Obs	Obs Subject to BA	Net Capital Expend.	Out-standing	Net Capital Obs	Obs Subject to BA	Net Capital Expend.	Out-standing
<b>Cum. - Start-of-Year: 1974 Act</b>	<b>2,544</b>		<b>2,544</b>		<b>2,497</b>		<b>2,497</b>	
<b>Start-of-Year: 1980 Act</b>	<b>1,226</b>		<b>1,226</b>		<b>1,273</b>		<b>1,273</b>	
<b>Start-of-Year: Proposed</b>	<b>113</b>		<b>113</b>		<b>611</b>		<b>611</b>	
<b>Start-of-Year: Total</b>	<b>3,883</b>	<b>3,841</b>	<b>3,770</b>	<b>3,863</b>	<b>4,381</b>	<b>4,339</b>	<b>3,770</b>	<b>4,361</b>
<b>Plus: Annual Increase 2/</b>								
<b>Annual Increase: 1974 Act</b>	<b>140</b>		<b>140</b>		<b>73</b>		<b>73</b>	
<b>Annual Increase: 1980 Act</b>	<b>72</b>		<b>72</b>		<b>57</b>		<b>57</b>	
<b>Annual Increase: Proposed</b>	<b>498</b>		<b>498</b>		<b>89</b>		<b>89</b>	
<b>Annual Borrowing A. Increase</b>	<b>710</b>	<b>710</b>	<b>710</b>		<b>219</b>	<b>219</b>	<b>219</b>	
<b>Treasury Borrowing (Cash)</b>				<b>710</b>				<b>219</b>
<b>Less:</b>								
<b>Bond Amortization: 1974 Act</b>	<b>187</b>		<b>187</b>		<b>110</b>		<b>110</b>	
<b>Bond Amortization: 1980 Act</b>	<b>25</b>		<b>25</b>		<b>20</b>		<b>20</b>	
<b>Bond Amortization: Proposed</b>	<b>0</b>		<b>0</b>		<b>0</b>		<b>0</b>	
<b>Total BPA Bond Amortization 2/</b>	<b>212</b>	<b>212</b>	<b>212</b>	<b>212</b>	<b>130</b>	<b>130</b>	<b>130</b>	<b>130</b>
<b>Net Increase/(Decrease):</b>								
<b>1974 Act</b>	<b>(47)</b>		<b>(47)</b>		<b>(37)</b>		<b>(37)</b>	
<b>1980 Act</b>	<b>47</b>		<b>47</b>		<b>37</b>		<b>37</b>	
<b>Proposed Act</b>	<b>498</b>		<b>498</b>		<b>89</b>		<b>89</b>	
<b>Total</b>	<b>498</b>	<b>498</b>	<b>498</b>	<b>498</b>	<b>89</b>	<b>89</b>	<b>89</b>	<b>89</b>
<b>Cum. - End-of-Year: 1974 Act</b>	<b>2,497</b>		<b>2,497</b>		<b>2,460</b>		<b>2,460</b>	
<b>End-of-Year: 1980 Act</b>	<b>1,273</b>		<b>1,273</b>		<b>1,310</b>		<b>1,310</b>	
<b>End-of-Year: Proposed</b>	<b>611</b>		<b>611</b>		<b>700</b>		<b>700</b>	
<b>End-of-Year: Total</b>	<b>4,381</b>	<b>4,339</b>	<b>4,381</b>	<b>4,361</b>	<b>4,470</b>	<b>4,428</b>	<b>4,470</b>	<b>4,450</b>
<b>Total Borrowing Authority 3/</b>				<b>89</b>				<b>0</b>
<b>Total Legislated</b>								
<b>Borrowing Authority 3/</b>				<b>4,450</b>				<b>4,450</b>

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**BONNEVILLE POWER ADMINISTRATION**  
**BPA STATUS of BORROWING**  
**PROPOSED LEGISLATION 11**  
(in millions of dollars)

BP-4D

		Fiscal Year			
		2007			
		Net Capital			
		Net Capital	Obs Subject	Net Capital	Bonds Out-
		Capital	to BA	Expend.	standing
		Obs			
<b>Cum. - Start-of-Year: 1974 Act</b>		<b>2,460</b>		<b>2,460</b>	
<b>Start-of-Year: 1980 Act</b>		<b>1,310</b>		<b>1,310</b>	
<b>Start-of-Year: Proposed</b>		<b>700</b>		<b>700</b>	
<b>Start-of-Year: Total</b>		<b>4,470</b>	<b>4,428</b>	<b>4,470</b>	<b>4,450</b>
<b>Plus: Annual Increase 2/</b>					
<b>Annual Increase: 1974 Act</b>		<b>110</b>		<b>110</b>	
<b>Annual Increase: 1980 Act</b>		<b>20</b>		<b>20</b>	
<b>Annual Increase: Proposed</b>		<b>365</b>		<b>365</b>	
<b>Annual Borrowing A. Increase</b>		<b>495</b>	<b>495</b>	<b>495</b>	
<b>Treasury Borrowing (Cash)</b>					<b>495</b>
<b>Less:</b>					
<b>Bond Amortization: 1974 Act</b>		<b>111</b>		<b>111</b>	
<b>Bond Amortization: 1980 Act</b>		<b>0</b>		<b>0</b>	
<b>Bond Amortization: Proposed</b>		<b>0</b>		<b>0</b>	
<b>Total BPA Bond Amortization 2/</b>		<b>111</b>	<b>111</b>	<b>111</b>	<b>111</b>
<b>Net Increase/(Decrease):</b>					
<b>1974 Act</b>		<b>(1)</b>		<b>(1)</b>	
<b>1980 Act</b>		<b>20</b>		<b>20</b>	
<b>Proposed Act</b>		<b>365</b>		<b>365</b>	
<b>Total</b>		<b>384</b>	<b>384</b>	<b>384</b>	<b>384</b>
<b>Cum. - End-of-Year: 1974 Act</b>		<b>2,459</b>		<b>2,459</b>	
<b>End-of-Year: 1980 Act</b>		<b>1,330</b>		<b>1,330</b>	
<b>End-of-Year: Proposed</b>		<b>1,065</b>		<b>1,065</b>	
<b>End-of-Year: Total</b>		<b>4,854</b>	<b>4,812</b>	<b>4,854</b>	<b>4,834</b>
<b>Total Borrowing Authority 3/</b>					<b>(384)</b>
<b>Total Legislated</b>					
<b>Borrowing Authority 3/</b>					<b>4,450</b>

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**Sandford, Sue - DFF-2**

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**From:** Maichel, Chuck - PMF-6

**Sent:** Monday, July 01, 2002 1:05 PM

**To:** Sandford, Sue - DFF-2

**Subject:** Revised PBL Capital\_\_\_\_.doc

# **PBL's Capital Investment Plan**

**Bonneville Power Administration  
August 2001**

## **Contents**

- **Overview of PBL Capital Investment Program**
  
- **FCRPS Investments**
  - **Background**
  - **Summary of the FCRPS Program**
  - **Generation Efficiency**
  - **Hydro Optimization**
  - **Reliability**
  - **Generation Expansion**
  - **Incremental Energy Gains**
  - **Rates of Return on Investments**
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- **Conservation Investment**
  - Background
  - Why BPA Invests in Conservation
  - Proposed New Conservation Investment
  - Rates of Return on Investments
  - Private/Public Partnership in Acquiring Conservation
- **PBL's Capital Investment Review Process**
- **Why BPA Investment**

### **Overview of the PBL Capital Investment Program**

- PBL's load reduction exercise provided a short-term solution to its supply/demand imbalance. Now it is time to move on to longer-term solutions that address the fundamental issue of power supply adequacy, and BPA is seeking increased borrowing authority to enable it to implement solutions in both the PBL and the TBL.
- A reliable power supply requires capital investment in both generation and conservation, and action must be taken now. The least-cost approach to balancing loads and resources requires long-term planning and multi-year commitments for which future availability of capital must be assured
- PBL is responsible for meeting BPA's legal obligation to serve the load that regional utilities choose to place on us. We meet this responsibility by:
  - Funding the routine O&M at FCRPS projects, targeting project investments that will increase efficiency and achieve industry standards of reliability;
  - Acquiring the output of projects such as renewable resources and the Columbia Generating Station;
  - Purchasing power in the market place; and
  - Investing in conservation opportunities that reduce our load-serving obligation
- The PBL's Planned Capital Investment Program includes 3 types of investments:
  - Investment in the Corps and Bureau hydroelectric facilities comprising the FCRPS, to increase efficiency and reliability of the facilities, and develop additional generation at some projects.
  - Investment in cost effective conservation to help balance BPA and regional loads and resources over the rate period and in new technology to help integrate demand-side management, distributed generation, and other new concepts into regional power markets over the longer term.
  - Investment in new computer hardware and systems to increase the efficiency and effectiveness of PBL's internal process and decision-making.

## **PBL Capital Investment Program (cont.)**

- Investments in facilities to mitigate hydro system impacts and BPA's direct fish and wildlife program also are included in PBL's costs, but they are planned and managed in a different process and are not described in detail here.
- The PBL's Planned Capital Investment Program includes investments that already were included in prior years budgets, investments that were not in prior years budgets but were included in the recently completed Rate Case as part of the system augmentation necessary to meet Subscription load obligations, and additional investments intended to help resolve the near-term West Coast electricity supply shortage which are not included either in prior year's budgets or in the Rate Case.

## **PBL Capital Investment Program (cont.)**

- The table below summarizes the major components of the Planned Investment Program.

	<b>5-Year Total (\$M)</b>	<b>10-Year Total (\$M)</b>
<b><u>Prior Year's Budget</u></b>		
FCRPS	362.6	775.4
IT	69.9	69.9
Fish & Wildlife	177.0	357.0*
<b>Subtotal</b>	<b>609.5</b>	<b>1079.3</b>
<b><u>Additions Included in 2001 Rate Case</u></b>		
Conservation	300.0	300.0
<b><u>Other Additions</u></b>		
FCRPS	248.0	496.2
Conservation	N/A	200.0
<b>Total</b>	<b>1157.5</b>	<b>2198.5</b>

\*Estimated

- Additional details of the FCRPS and Conservation portions of the Planned Investment Program are provided on the following pages

## **FCRPS Investments -- Background:**

- NEPA 1992 allowed the Corps of Engineers and Bureau of Reclamation to receive funding directly from BPA. **Agreements to implement "direct funding" are in**

place for both agencies.

- The hydroelectric projects that comprise the FCRPS represents about 90% of BPA's power supply. It includes 31 hydro projects with over 200 generating units. It has a total capacity of 22,500 MW and produces on average nearly 9,000 aMW annually.
- **The projects have an average age of 45 years, however some plants are over 60 years old.** While a few of these older plants have been rehabilitated, several more need attention. Investment in these plants will return benefits due to improved reliability and increased generation efficiency.
- In 1998 Congress directed BPA to report on its program for managing the generating assets. **In mid-1999, BPA issued this report and began implementing the "Asset Management Strategy for the FCRPS."**
- The Congressional direction stemmed from an earlier recommendation in 1997 by the Cost Review Management Committee, which recognized the need for a consolidated, integrated asset management strategy.

### **FCRPS Investments - Background (cont.)**

- The Asset Management Strategy was developed in collaboration with the Corps and Reclamation. It involved an assessment of the material condition of major hydro project equipment, economic analyses of the benefits of investments, comparison of FCRPS performance indicators against benchmarks for other hydroelectric utilities, and identification of a number of new initiatives to improve asset performance over the next 15 years.
- The strategy, with two overarching objectives, was well received by Congress and by the stakeholders in the region. The objectives were "to establish the level of power and joint-use investments needed to restore the reliability of the FCRPS to industry standards or better; and assess the ability of the FCRPS to enhance revenues by at least \$50 million per year."
- **A fundamental conclusion of the Asset Management Strategy was the need to invest nearly \$1 billion into the projects over the next 12 to 15 years.**
- **Without investments to restore reliability, recent history indicates that unit**

**availability may decline at about 1.5% per year.** For example, between 1990 to 1995, actual availability for the Corps projects declined steadily from almost 92% to nearly 83%. Since then, these projects and the rest of the FCRPS has recovered to more than 88% availability in 2000.

- **With a well-funded investment program, increases in availability are possible. The goal is to achieve 95% availability. Over 350 aMW of additional energy is possible through reliability investments, at an average of \$57 million per year for the next 10 years.**

### **FCRPS Investments - Background (cont.)**

- **Another 300 aMW is possible through generation efficiency improvements such as turbine runner replacements and optimization of hydro operations, at an average cost of \$30 million per year over the next 10 years.**
- Given the variety of existing Federal hydro projects, numerous new development opportunities exist that more effectively use water passing these projects. This generally involves new turbine-generator installations where no equipment exists today. Before commitments are made, economic hurdles have to be met. Required rates of return exceed levels currently used by the utility industry and other “businesses.”
- As a result of the **FCRPS’ participation in utility benchmarking programs**, investment comparisons have been made. With the planned program, the FCRPS would average about \$4.50 per kw of installed capacity. This compares to an overall hydro utility benchmark of \$7.00 per kw or more. Several other specific utilities have had past investments ranging from \$4.70 to over \$16.00 per kw. These utilities may have slightly older units but have recognized the need to invest in maintaining their operation.
- BPA, as the agency responsible for repaying the power system debt, is directly responsible for the performance of the system. The consequences of this performance are passed to Northwest ratepayers.
- BPA has developed a performance indicator process which provides immediate feedback on how well the system and its projects are meeting annual targets. The targets are evaluated and adjusted each year. Performance incentives are or will be based on the results of this annual tracking.

## **Summary of The FCRPS Program:**

- The FCRPS Capital Investment Program anticipates all capital investment needs of the hydro system. The program includes a variety of investments, represents a long-term commitment (more than 10 years), and will return benefits in excess of costs.
- **Total investment of \$1.272 billion is budgeted. Most of this budget (\$776 million) was anticipated in the recently completed power rate case and matches the level recommended in the Asset Management Strategy. The remainder (\$496 million) represents additional investment needs above and beyond the planned levels in the strategy.**
- Investments can be categorized into 5 areas: generation efficiency, hydro optimization, generation expansion, reliability, and small capital.
- Maintaining the reliability and increasing the efficiency of the FCRPS is critical to ensuring the region has as adequate, reliable and low cost power system. Sizing cost-effective opportunities to expand the generation capability of the Federal system is both an economic and environmental “smart decision” compared to purchasing power from the market to serve Pacific Northwest electricity needs. And, while new private generation resources are being planned and built over the next 5 years, most will be fossil fuel based and subject to the same market volatility as electricity prices this past year. In short, the alternative to clean, cheap renewable hydropower is fossil fuel generating plants with accompanying gas price volatility and air quality degradation.

## **FCRPS Generation Efficiency**

- **Generation efficiency investments, the first category of FCRPS investments, meet the Asset Management Strategy objective of “enhancing revenues by at least \$50 million per year.” Consequently, this category of investments is considered a high priority.**
- Generation efficiency projects involve replacement of turbine runners. Ongoing or planned upgrades to runners are underway for the original powerhouses of Grand Coulee, the first portion of the Chief Joseph powerhouse, and McNary powerhouse. At McNary, a complete powerhouse rehabilitation is planned that includes new runners, rewinding of generators and a series of reliability improvements to other



equipment.

- **The total 10-year effort for generation efficiency is \$229 million. The base Asset Management Strategy program was planned at \$209 million. The remainder (\$20 million) was included in the incremental request.**
- **Total energy gained over 10 years is 157 aMW. About 22 aMW of this gain is included in the incremental investment amount and would be forgone if the budget increase is not approved.**
- **More energy from this type of investment would be foregone if budgets were diverted from this category in order to restore reliability or to repair failed units.**

### **FCRPS Hydro Optimization**

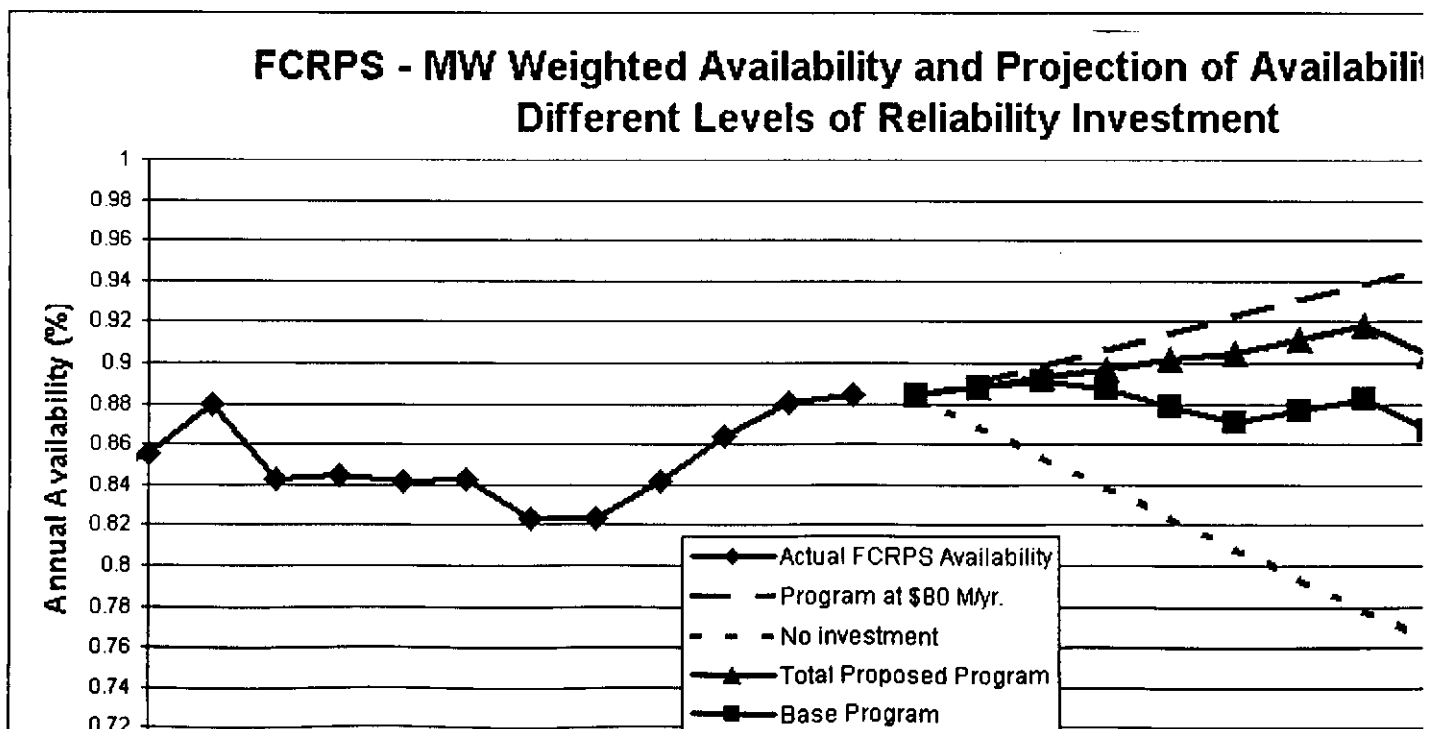
- **The second category of investment, hydro optimization, involves a variety of activities directed at operating the hydro system in a manner to gain additional efficiencies, beyond equipment replacements (such as runner replacements). For example, operating the most efficient units within a plant and operating the most efficient plants within the system can provide 1 to 4% gains in total system generation.**
- **The total 10-year effort for hydro optimization is \$66 million. The base Asset Management Strategy program was estimated at \$41 million. The remainder (\$25 million) was included in the incremental request.**
- **Total energy gained over 10 years is 160 aMW. About 60 aMW of this gain is included in the incremental investment amount and if the budget increase is not approved, then the energy would be forgone.**
- **This category of investment also supports the revenue enhancement objective suggested in the Asset Management Strategy.**

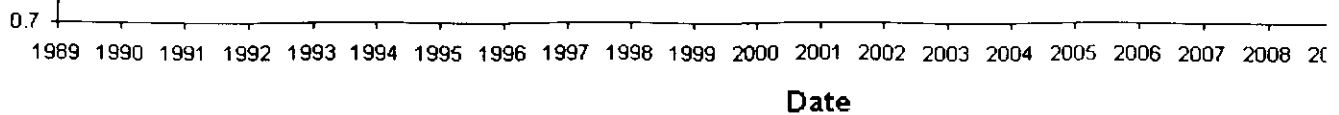
### **FCRPS Reliability**

- **The third category of investments, reliability, represents the work needed to maintain system performance at a reasonable level of unit availability. Approximately 75 specific**

contracts covering work at projects in this category are currently underway. Examples include rewinding generators, replacing governor control systems, main unit breakers and step-up transformers, and restoring operation of failed or failing components.

- Foregoing these investments likely will result in a decline in generation availability. Based on past experience, the decline in availability easily could be 1.5% per year
- The benefit from the investments is determined by the difference in availability with and without investment. If little or no investment is made, units remain out of service longer and reduce overall system availability. Peak power production and revenue from BPA power sales is reduced. On the other hand, if sufficient investments are made, gains in overall availability are achieved, providing increased generation and revenue. The graph on the following page shows expected availability with and without the investments in reliability.
- **The total 10-year effort for reliability is \$569 million.** The base Asset Management Strategy program was estimated at \$409 million. The remainder (\$160 million) was included in the incremental request. About \$60 million of the incremental request is past-years carry-forward funds, which were obligated but unexpended. The investments to which these funds were originally directed persist and need to be covered.
- **Total energy gained over 10 years is 364 aMW.** About 59 aMW of this gain is included in the incremental investment amount and would be forgone if the budget increase is not approved.





## **FCRPS Generation Expansion (and Small Capital)**

- **The fourth category of investment is generation expansion.** These involve development of new capacity at existing Federal hydro projects, which capture unused water. In the next five years, 4 investments are under consideration, namely, adding turbine generators on fish attraction water at John Day and Bonneville projects, and adding one new unit each at Dworshak and Detroit projects. A variety of other expansions have been inventoried and would be considered during the 10-year period.
- This category of activity represents an opportunity to expand the generation capability of the FCRPS and each individual unit will need to satisfy the economic benefits requirement for the agency (i.e., IRR of 13%). Collectively, the projects are appropriate development at Federal facilities for which BPA has the initial rights to refuse.
- **The total 10-year effort for generation enhancements is \$291 million.** The base Asset Management Strategy program included no budget for this category. The entire amount is in the incremental request.
- **Total energy gained over 10 years is estimated at 59 aMW.** All of this gain would be lost if the budget increase is not approved.
- The fifth category of investment is small capital. This category represents small incidental materials and supplies that are capitalized. They are managed through the operation and maintenance program separate from the Capital Investment Program. The budget is include here for completeness only.

The table below shows the original budget for the Asset Management Strategy, the additions proposed that support the request for increased borrowing authority, and the incremental energy expected to be made available during the 2002-06 Rate Period as a result.

## Federal Hydro Projects 10-Year Capital Budget Needs

(\$ millions)

	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Total \$ FY 2002-06
<b>Asset Management Strategy</b> (funds for reliability and generation efficiency investments; budget for FY 2002-06 matches current rate case)							
<b>TOTAL</b>	<b>73.6</b>	<b>89.9</b>	<b>86.8</b>	<b>61.7</b>	<b>62.1</b>	<b>62.2</b>	<b>362.6</b>
<b>Generation Expansion</b> (additional development at existing Federal projects)	0.0	14.1	27.0	15.9	20.0	28.0	<b>105.0</b>
<b>Past Years Carry Forward</b> (funds budgeted but not expended in prior year, yet investment needs remain; 25% into Gen Eff. and 75% into Reliability)	0.0	0.0	0.0	16.0	30.4	33.6	<b>80.0</b>
<b>Hydro Optimization Increment</b> (funds to acquire additional energy that has a particularly fast and high economic return)	0.0	1.0	2.0	4.0	4.0	4.0	<b>15.0</b>
<b>Reliability Investment Increment</b> (additional funds needed to maintain a consistent investment in reliability and to cover cost increases)	0.0	0.0	1.2	19.4	13.9	13.4	<b>48.0</b>
<b>TOTAL</b>	<b>\$73.6</b>	<b>\$105.0</b>	<b>\$117.0</b>	<b>\$117.0</b>	<b>\$130.4</b>	<b>\$141.2</b>	<b>\$610.6</b>

## Summary of FCRPS Investments and Incremental Energy Gains

- The total budget with the additions noted above is allocated among the categories of investment as follows:

SUMMARY (\$ millions)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Total FY 2002-06
<b>Small Capital</b>	10.4	10.5	10.7	10.9	11.2	11.5	<b>54.8</b>
<b>Generation Efficiency</b>	3.3	17.4	18.2	25.0	34.6	37.4	<b>132.5</b>
<b>Hydro Optimization</b>	4.4	5.0	6.0	8.0	9.0	10.0	<b>38.0</b>
<b>Reliability Investments</b>	55.4	58.0	55.1	57.2	55.6	54.3	<b>280.2</b>
<b>Generation Expansion</b>	0.0	14.1	27.0	15.9	20.0	28.0	<b>105.0</b>
<b>TOTAL</b>	<b>\$73.6</b>	<b>\$105.0</b>	<b>\$117.0</b>	<b>\$117.0</b>	<b>\$130.4</b>	<b>\$141.2</b>	<b>\$610.6</b>

- The projected investments result in benefits, specifically in incremental energy gains in average megawatts, as shown below. This energy gain was used to evaluate the rate of return that is a critical part of the justification for the investment program.

INCREMENTAL ENERGY ACQUIRED (amw)	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	Total FY 2002-06
<b>Small Capital</b>	0.0	0.0	0.0	0.0	0.0	0.0	<b>0.0 amw</b>

Smart Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0 aMW	
Generation Efficiency	0.0	10.0	10.0	15.4	22.6	22.2	80.2 aMW	
Hydro Optimization	8.0	6.0	9.1	18.1	21.2	21.2	75.6 aMW	
Reliability Investments	9.0	28.1	28.1	33.8	33.4	32.8	156.2 aMW	
Generation Expansion	8.0	0.5	6.1	3.8	4.3	11.1	25.8 aMW	
<b>TOTAL</b>	<b>25.0</b>	<b>44.6</b>	<b>53.3</b>	<b>71.2</b>	<b>81.5</b>	<b>87.3</b>	<b>337.8 aMW</b>	

## Rates of Return on FCRPS Investments

- Internal rates of return for the entire 10-yr program for each category of investments, assuming 20 years of benefits and expected market prices from the second table below, are:

Category	Total Program
Generation Efficiency	35%
Hydro Optimization	168%
Reliability	32%
<b>Overall</b>	<b>39%</b>
Generation Expansion	TBD *

\* The goal rate for future Federal Hydro projects is 13% rate of return.

- Internal rates of return for base and incremental investments under a range of future market prices are:

Category	Base Program	Incremental Program	Total Program
Expected Market Prices (\$48/mwh)	40%	20%	39%
High Prices (\$72/mwh)	67%	57%	65%
Low Prices (\$24/mwh)	19%	16%	18%

## Comparison of FCRPS to Other Hydro Systems

-

INVESTMENT PER INSTALLED CAPACITY (\$/kw)	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
FCRPS (22,513 MW)	3.27	4.04	4.00	4.49	4.90	5.03
Representative Hydro Utilities Benchmark	75,000 MW					
BC Hydro	9,746 MW					
Ontario Power Generation	7,200 MW					
Vattenfall (Sweden)	7,514 MW					
Duke Power	1,634 MW					
TVA	2,740 MW					
Seattle City Light	1,051 MW					

The FCRPS is one of the largest hydroelectric generation systems in the world, at over 22,000 MW of installed capacity producing on average 8,900 aMW. When compared to other hydroelectric utilities' investments, the FCRPS investment is at the low-end range of capital investments (see table below). The projected investment rates per installed generation capacity (\$/MW) by year are shown in the table along with some other utilities' overall historical rates. The costs reflected in the table do not include investments in environmental mitigation.

- Other utilities tend to have old projects (40 to 80 years of age) and their capital spending levels reflect major rehabilitation investments to extend life of their hydro assets. Some of these utilities also have small generating unit sizes which results in high investment rates on a per kilowatt basis. The FCRPS hydropower system, with generating units now averaging 45 years in age, is now just entering a period when significant capital replacement dollars are needed, as can be seen by the increasing FCRPS capital investment rates in the table above.

### Conservation Investment - Background

- **During the 1982 to 2000 time period**, BPA, in collaboration with its power customers, has delivered over 775 aMWs of conservation savings at a cost of about \$1.8 billion. This equals **an average cost of just over \$2 million per aMW**.
- The composition of these saving is as follows: 295 aMW from the Residential Sector; 195 aMW from the Industrial Sector; 170 aMWs from the Commercial Sector; 95 aMW from Multisector programs; and 20 aMW from the Agricultural Sector.
- **BPA has reduced its conservation staff from over 230 BFTE and 100 CFTE in 1993 to 60 BFTE and 10 CFTE in 2001**. Yet we anticipate being able to deliver a comparable level of conservation savings by restructuring our DSM initiatives, particularly our investment in conservation as part of augmentation.
- This restructuring of BPA's conservation purchases under the augmentation program

will, to the extent practical, be cost-based with a strong pay-for-delivered savings bias. In addition, BPA has repositioned its conservation funding commitments to leverage utility and consumer contributions since they benefit substantially from these investments, too.

## **Why BPA Invests in Conservation**

- Bonneville buys conservation at the lowest possible cost to augment its resource portfolio. Conservation purchases are designed to offset power purchases that Bonneville would have to make absent the conservation savings achieved. **Capitalizing the conservation purchases spreads the cost of the conservation over a number of years, thereby reducing the rate impact of acquiring the conservation over the 2002-06 Rate Period.**
- A diverse portfolio of resources that includes conservation provides a more reliable approach to meeting Bonneville's load obligations. Long-term investments in energy efficiency provide a "shock absorber" for the FCRPS against future resource uncertainties. During periods of price volatility, conservation also helps reduce financial risk associated with relying on the market for energy purchases in the future, because it keeps on producing at the original cost incurred.
- Investments in conservation stretch the existing resource base further. Also, strategic conservation can help Bonneville manage capacity problems and other constraints on existing transmission facilities.
- Numerous local, regional and national surveys indicate that rate payers support conservation and other non-polluting resources because they want a clean, healthy environment. Based on the NWPP's mix of resources in CY 2000, the pollution savings per aMW would be 4 tons of SO<sub>2</sub>, 10.6 tons of NO<sub>x</sub>, and 4494.4 tons of CO<sub>2</sub>.

## **Why BPA Invests in Conservation (Continued)**

- **Bonneville's Statutory Conservation Mandate:** The Regional Act (Public Law 96-501) requires Bonneville first to acquire all cost effective conservation when developing power resources to meet future loads as the Administrator determines are consistent with the NW Power Planning Council's Power Plan.

- Further, the Act states “Notwithstanding any acquisition of resources pursuant to this section, the Administrator shall not reduce his efforts to achieve conservation and to acquire renewable resources...”
- **The NW Power Planning Council’s next Power Plan specifies that Bonneville’s share of the regional, cost-effective conservation target will be about 220 aMW by 2006.** In addition, the Council’s Plan further estimates that Bonneville’s target will be another 250 aMW of conservation in the 2007 to 2011 period. Bonneville has committed to meet or exceed the Council’s targets. **Bonneville anticipates that between 100 and 225 aMW of this amount will be acquired under the Augmentation Strategy using Bonneville’s Treasury borrowing authority.**
- State and local officials in the PNW support Bonneville’s augmentation efforts only in the context of a robust conservation initiative. (See 6/4/01 letter from the four NW governors, etc.).
- “Conservation and energy efficiency are important elements of a sound energy policy.” *National Energy Policy, Chapter 4: Using Energy Wisely – Increasing Energy Conservation and Efficiency* (May 2001).
- In addition to conservation, BPA also is exploring how best to integrate DSM, distributed generation, and other “cutting edge” technologies into its resource portfolio. This consistent with the new *National Energy Policy* – “....there is significant promise in these technologies to meet an ever-growing portion of our nation’s energy needs.”

## **Proposed New Conservation Investment**

- Bonneville’s proposed new Capital Investment in Conservation is made up of two major parts: (1) Conservation as part of Augmentation; and (2) Energy Web
- **Conservation investments as part of Augmentation (ConAug) are designed to offset some of the power purchases that Bonneville would have to make to meet its load commitments during the next Rate Period.** ConAug offers several ways for customers to participate in regional energy conservation. The capital budget for ConAug overall is based on an average cost per megawatt acquired, but budgets are not broken down to component programs beyond FY2002. Since Bonneville is negotiating program features and customer-specific deals, individual contracts and types of measures are not known far in advance. Bonneville is setting cost targets that will change as prices on the market changes.
- ConAug program components include (1) Request for Interest in Reducing Load Through Conservation (IRLC), which will result in customer proposals in the areas of



Residential Weatherization, Commercial Lighting and HVAC, Industrial Processes and Lighting, and Irrigated Agriculture; (2) Residential Compact Fluorescent Lighting; (3) “Vending Miser”, a program to reduce energy use in regional refrigerated vending machines; (4) Federal “Quick Start”, a program to help Federal installations in the Region reduce energy use, and (5) several other initiatives that still are being designed.

### **Proposed New Conservation Investment (Continued)**

- In addition to ConAug, Bonneville also is exploring how best to integrate demand side management, distributed generation including direct application renewables (DAR), and other “cutting edge” technologies into its resource portfolio. This effort, Bonneville’s “Energy Web” initiative, includes a number of projects to facilitate the integration of these advanced technologies into practical utility and consumer applications.
- The following table summarizes Bonneville’s new Conservation Investments:

<b>SUMMARY (\$ millions)</b>		<b>FY 2002</b>	<b>FY 2003</b>	<b>FY 2004</b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>Total FY 2002-06</b>	<b>Total F 2007-1</b>
<b>Con Aug</b>		<b>\$ 24.0</b>	<b>\$ 40.2</b>	<b>\$ 58.0</b>	<b>\$ 73.8</b>	<b>\$ 94.0</b>	<b>\$ 290.0</b>	<b>\$ 200.</b>
	* IRLC	\$ 13.5	\$ 16.2	N/A	N/A	N/A	\$ 29.7	N/A
	* Regional CFL	\$ 3.5	N/A	N/A	N/A	N/A	\$ 3.5	N/A
	* Vending Miser	\$ 4.7	N/A	N/A	N/A	N/A	\$ 4.7	N/A
	* Fed Quick Start	\$ 2.1	N/A	N/A	N/A	N/A	\$ 2.1	N/A
<b>Energy Web</b>		<b>\$ 2.0</b>	<b>\$ 2.0</b>	<b>\$ 2.0</b>	<b>\$ 2.0</b>	<b>\$ 2.0</b>	<b>\$ 10.0</b>	<b>\$ -</b>
<b>TOTAL</b>		<b>\$ 26.0</b>	<b>\$ 42.2</b>	<b>\$ 60.0</b>	<b>\$ 75.8</b>	<b>\$ 96.0</b>	<b>\$ 300.0</b>	<b>\$ 200.</b>
	<b>MWav</b>	<b>10</b>	<b>15</b>	<b>20</b>	<b>25</b>	<b>30</b>	<b>100</b>	

### **Rates of Return on Conservation Investments**

- Internal rates of return for the 5-year conservation capital program from a regional cost-effectiveness viewpoint (assuming 20 years of benefits, and not reflecting “lost revenues” to BPA) are shown in the following table. (If the lost revenues to BPA are included, the ROR is negative; see the second table for the resulting rate impact.)

<b>Conservation 5-Year Program</b>	<b>ROR</b>
Total Expected Market Prices	14.5%
Total High Market Prices	25.3%
Total Low Market Prices	3.1%

### **Accumulated Net Revenues from Conservation Investment, Accounting for Lost Revenue Effect:**

<b>Conservation Infrastructure Investments</b>	<b>Accumulated Net Revenues (\$000)</b>		<b>Rate Impact (\$/MWhr)</b>	
	<u>FY2002-2006</u>	<u>FY2002-2011</u>	<u>FY2002-2006</u>	<u>FY2002-2011</u>
Expected Market Prices	\$ (67,450)	\$ (196,634)	0.22	0.33
High Market Prices	\$ (21,058)	\$ (46,623)	0.07	0.08
Low Market Prices	\$ (113,842)	\$ (346,646)	0.38	0.58

### **Private/Public Partnership in Acquiring Conservation**

- Bonneville's capital program is a small but key piece of the Northwest Regional Power Plan and the regional conservation program. Bonneville is responsible for less than half of the region's conservation and our capital program represents less than 25% of the total regional conservation investment called for in the plan. Bonneville's capital program is ½ of the Agency total conservation budget (the other half is expensed- paid for directly from current revenues). The Regional Plan calls for additional savings of 1079 aMW from 2001 through 2010. Bonneville's share over the next 10 years is 467 aMW, of which up to 225 aMW will be financed with debt. Bonneville's leadership in this private/public partnership is essential.
- Bonneville energy efficiency programs are implemented by the private business sector. Bonneville provides funding to consumers to pay for conservation that would not be done without some support. Funding flows through Bonneville's customer utilities that pay for work done by local companies that install measures in homes and businesses. The businesses that provide conservation goods and services range from engineering and consulting firms, to "mom and pop" weatherization installers; from window and insulation manufactures to companies that manufacture and install efficient industrial equipment.

- In addition to the companies that benefit, the conservation resource strategy results in additional jobs compared to construction of thermal generation. A study of Northwest conservation programs done by Charles River Associates, of Boston Massachusetts, found that energy efficiency conservation programs employed approximately 53 people in the Pacific Northwest per million dollars spent, compared to 33 people employed on construction of alternative thermal generation.

## **PBL Capital Investment Review Process**

- The capital investment review for the Power Business Line involves both quantitative and qualitative analysis of proposed multi-year capital spending, and executive review and approval.
- The steps in the process are summarized below:
  - Each project or project area requiring capital submits a detailed proposal addressing project purpose, alternatives considered, performance measurement, and results from financial and non financial analysis. Internal analysis frequently is validated through statistical benchmarking to other hydro systems and review by independent contractors retained to assess investment needs.
  - The financial analysis covers annual project costs/benefits, net present values and rates of return.
  - The non-financial analysis evaluates the degree to which each project supports the Agency's Strategic Business Objectives, and the Business Line's Balanced Scorecard Strategic Objectives, as well as other qualitative areas such as public benefits, system streamlining improvements, and facilitation of deregulation.
  - The Power Business Line's project-specific, multi-year capital investment proposals then go the business line's Capital Review Panel for review and approval. Following that step, the projects are consolidated into a business line capital investment portfolio for final review and approval by Corporate executive management.

## **Why BPA Investment?**

- Bonneville investments are necessary to achieve the agency's mission and

statutory mandates.

- Hydro investments
  - Business-like management of Federal assets calls for new investment in the existing system which will maintain or enhance revenue-producing generation
  - Investments in Federal Hydro do not lend themselves to private partnership due to questions of ownership and risks associated with the operation of the facilities (e.g., fish operations and water supply), the need to satisfy multiple uses and spread benefits to all who have access to FCRPS power, and Bonneville's need for generation to meet its own load obligations
- Conservation investments
  - Bonneville is required by law to acquire all cost-effective conservation first when developing new power resources to meet future loads
  - Conservation purchases offset power purchases and/or generation additions Bonneville would have to make in order to meet its load obligations, absent the conservation savings achieved

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## **PBL Capital Investment Program**



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# PBL Capital Investment Plan

Bonneville Power Administration  
September 2001



# PBL Capital Investment Plan

## Overview

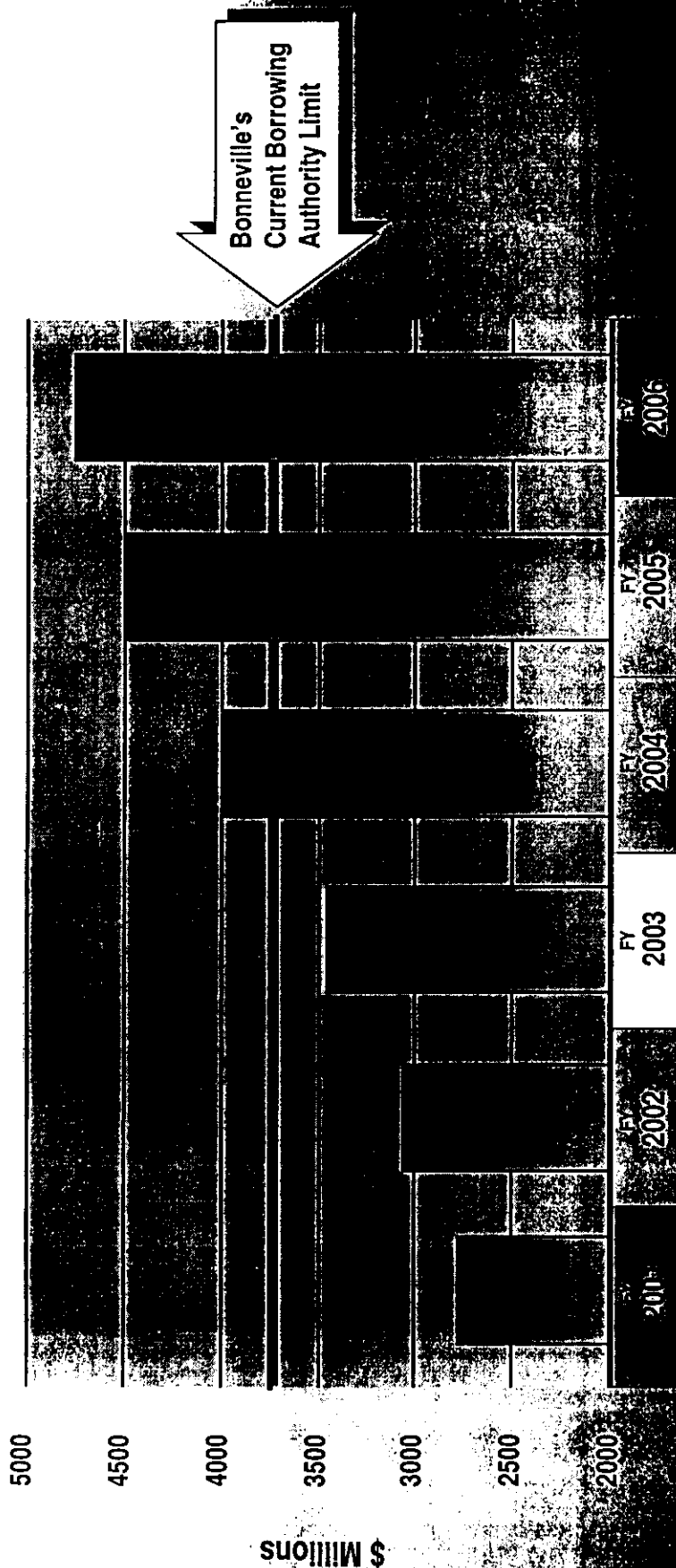
- BPA's load reduction exercise provided a short-term solution to the supply/demand imbalance.
- Now it is time to move on to long-term solutions that address the fundamental issue of generation and transmission supply.
- A reliable power supply requires capital investment in both generation and transmission.
- These are multi-year projects with long lead times. Action is needed now.
- As a result, BPA has a projected need to increase its borrowing authority by \$2 billion (\$1.3 billion for transmission, \$0.5 billion for generation projects, and \$0.5 billion for conservation - the balance of the needed capital comes from \$0.3 billion of retired debt).

Bonneville



Power  
Administration

# Bonneville's Projected Use of Borrowing Authority



The graph shows BPA's projected total borrowing through FY 2006. The line on the graph shows that, without an increase in BPA's borrowing authority, the agency will be unable to fund its infrastructure projects sometime during the 2004 fiscal year. That has an impact now because the capital projects require long-term planning. The agency needs to have its borrowing authority increased to provide a reliable source of capital to support long-term commitments to improvements in generation and transmission.





## PBL Capital Investment Plan

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- The PBL Capital Plan consists of four major components: investments in the hydro system, investments to acquire cost-effective conservation, investments in new computer hardware and systems, and fish and wildlife.
- Investments amounts in the 2002 Power Rate Case are sufficient to address investments in computer systems and fish and wildlife.
- Increased borrowing authority is needed to fund incremental components of conservation and generation investment plans.
- The FCRPS represents about 90% of BPA's power supply and includes 31 hydro projects with over 200 generating units. These projects have an average age of 45 years. A life extension program has begun.
- BPA has a statutory mandate to acquire all cost-effective conservation when developing new power resources to meet future loads.



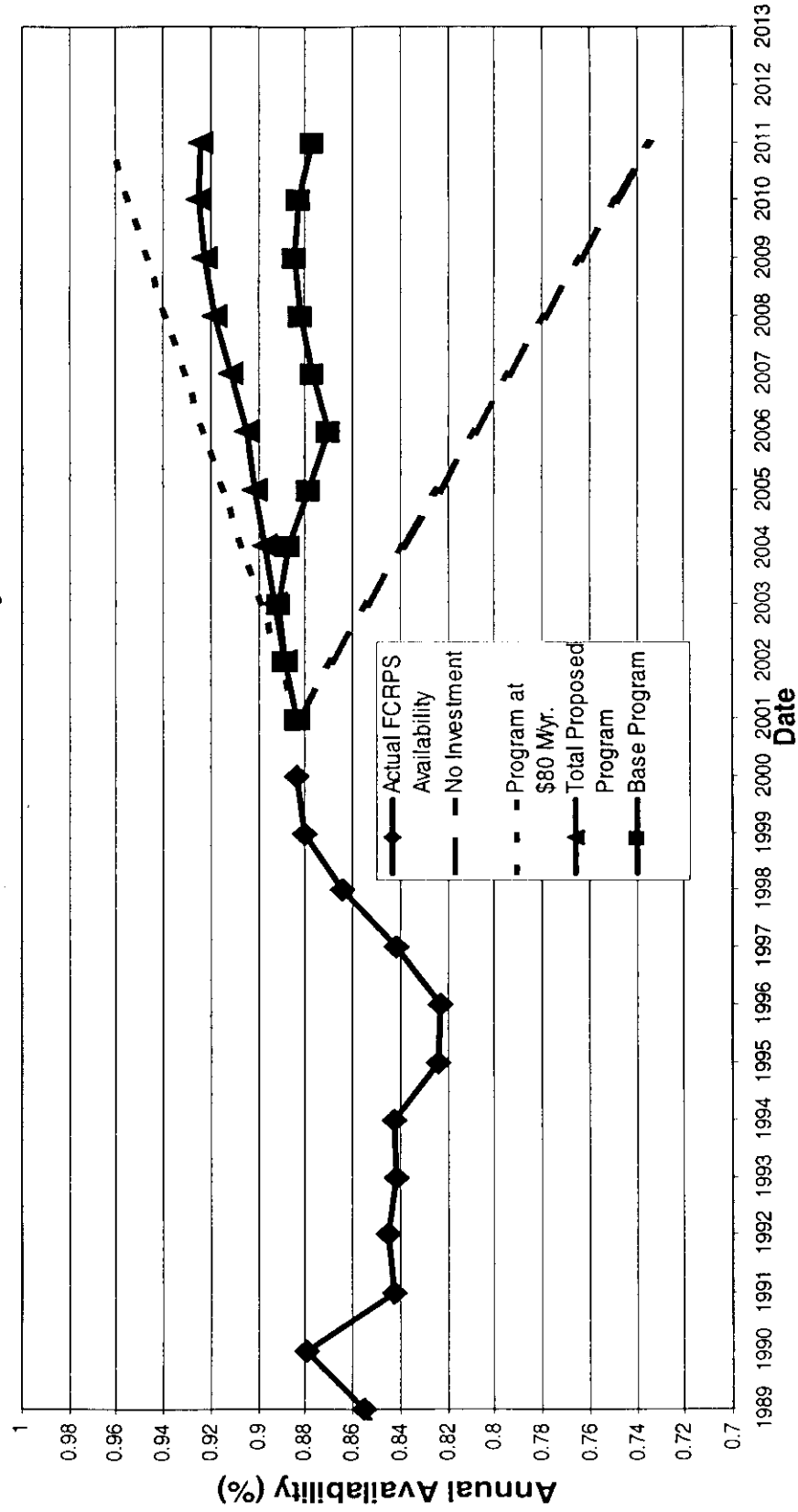
## PBL Capital Investment Plan

- With limited prior investment generation availability for the FCRPS was as low as 82% compared to an industry benchmark of 90%
- Through direct funding, generation availability has been restored - 89% last year
- In 1998 Congress directed BPA to report on its program for managing generating assets; the Asset Management Strategy for the FCRPS was issued in mid-1999
- The Strategy concluded there was a need to invest nearly a \$1 billion over the next 12-15 years
- Without investments, recent history indicates that generation availability may decline as much as 1.75% per year
- The goal is to achieve 95% availability
- Over 10 years and for reliability investments alone, 360 aMW of additional energy is possible at the full program levels
- An additional 380 aMW is possible through generation efficiency improvements, optimization of hydro operations, and new generation capacity at existing projects
- Total investment budget is \$1.272 billion. Of this, \$776 million was anticipated in the 2002 Power Rate Case. The \$496 million remaining represents additional investments which would provide a 1.3% internal rate of return (PBL's investment effort)



# PBL Capital Investment Plan

## FCRPS - MW Weighted Availability and Projection of Availability with Different Levels of Reliability Investment





# PBL Capital Investment Plan

The table below shows the original budget for the Asset Management Strategy and the additions proposed that support the request for increased borrowing authority for the 2002-06 Rate Period.

BUDGET (\$ million)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Total \$ FY 2002- 06	Total \$ FY 2007-11	Grand Total \$ FY 2002-11
Asset Management Strategy (funds for reliability and generator efficiency matches rate case)	89.4	86.6	61.7	62.1	62.2	362.0	451.8	775.4
Generation Expansion (new development at existing projects)	14.1	27.0	15.9	20.0	28.0	105.0	186.0	291.0
Past Years Carry Forward (prior years funds budgeted but not expended; 25% in gen. effc. & 75% in reliability)	0.0	0.0	16.0	30.4	33.6	80.0	0.0	80.0
Hydro Optimization Increment (funds for additional energy that has quick, significant economic return)	1.0	2.0	4.0	4.0	4.0	15.0	10.0	25.0
Reliability Investment Increment (additional funds to maintain a consistent investment in reliability)	0.0	1.2	19.4	13.9	13.4	48.0	52.2	100.2
Subtotal Incremental	105.5	117.0	117.0	130.4	141.2	610.6	661.0	1,271.6
TOTAL	105.0	117.0	117.0	130.4	141.2	610.6	661.0	1,271.6

# PBL Capital Investment Plan

The projected investment in the FCRPS will produce energy equivalent to the output of two new CCTs at a fraction of the fixed cost and with free fuel. This energy gain was used to evaluate the rate of return that is a critical part of the justification for the investment program.

INCREMENTAL ENERGY ACQUIRED (aMW)	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	Total FY 2002-06	Total FY 2007-11	Grand Total FY 2002-11
Small Capital	*	*	*	*	*	*	*	*
Generation Efficiency	10.0	10.0	15.4	22.6	22.2	80.2	76.9	157.1
Hydro Optimization	6.0	9.1	18.1	21.2	21.2	75.6	84.7	160.3
Reliability Investments	28.1	28.1	33.8	33.4	32.8	156.2	207.9	364.1
Generation Expansion	0.5	6.1	3.8	4.3	11.1	25.8	33.0	58.8
<b>TOTAL</b>	<b>44.6</b>	<b>53.3</b>	<b>71.1</b>	<b>81.5</b>	<b>87.3</b>	<b>337.8</b>	<b>402.5</b>	<b>740.3</b>



# PBL Capital Investment Plan

- The planned investment in the FCRPS is considerably less than that of other comparable hydro systems on an installed capacity basis. See table below.

FCRPS Investment per Installed Capacity (\$/kW) FY2001-2006	
Compared to past levels of investment by other hydro utilities	
Representative Hydro Utilities Benchmark	>\$7.00 /kW
BC Hydro	\$6.16 /kW
Ontario Power Generation	\$16.67 /kW
Vattenfall (Sweden)	\$4.66 /kW
Duke Power	\$16.52 /kW
TVA	\$14.20 /kW
Seattle City Light	\$7.42 /kW



# PBL Capital Investment Plan

## Rates of Return on FCRPS Investments

- Internal rates of return for the entire 10-yr program for each category of investments, assuming 20 years of benefits and expected market prices from the second table below, are:

Category	Total Program
Generation Efficiency	35%
Hydro Optimization	168%
Reliability	32%
Overall	39%
Generation Expansion	TBD *

\*10-year rate of return for Federal Hydroelectricity Statehood

- Internal rates of return for base and incremental investments under a range of future market prices are:

Category	Base Program	Incremental Program	Total Program
Expected Market Prices (\$48/mwh)	40%	20%	39%
High Prices (\$72/mwh)	67%	57%	65%
Low Prices (\$24/mwh)	19%	16%	18%



## PBL Capital Investment Plan

- A diverse portfolio of resources provides a more reliable approach to meeting Bonneville's load obligations
- Investments in energy efficiency help reduce financial risk associated with market purchases when market prices are volatile
- The NWPPC's Power Plan specifies that Bonneville's share of the regional target for cost-effective conservation will be about 220 aMW by 2006, and nearly 500 aMW by 2011
- The Conservation Augmentation Strategy, dependent on new borrowing authority, is expected to produce about 100 aMW during the next 5 years, and approximately 125 aMW in the following 5 years, or about 25% of the Council's target
- ConAug offers several ways for customers to participate in regional energy conservation; the overall capital budget for ConAug is based on an average cost per megawatt acquired, but budgets for component programs are not set beyond FY2002
- Capitalizing the conservation purchases spreads the cost of the conservation over a number of years, thereby reducing the rate impact of acquiring the conservation over the 2002-06 Rate Period.



# PBL Capital Investment Plan

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## Conservation Investments

- ConAug program components include (1) Request for Interest in Reducing Load Through Conservation (IRLC), (2) Residential Compact Fluorescent Lighting; (3) "Vending Miser"; (4) Federal "Quick Start", and (5) several other initiatives that still are being designed.
- Since Bonneville is negotiating program features and customer-specific deals, individual contracts and types of measures are not known far in advance. Bonneville is setting cost targets that will change as prices on the market changes.
- Through its "Energy Web" initiative, Bonneville also is exploring how best to integrate demand side management, distributed generation including direct application renewables (DAR), and other "cutting edge" technologies into its resource portfolio.



# PBL Capital Investment Plan

- The following table summarizes BPA's new Conservation Investments:

SUMMARY (\$ millions)	Total FY					Total FY		Total FY
	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	2002-06	2007-11	
<b>Con Aug</b>	<b>\$ 24.0</b>	<b>\$ 40.2</b>	<b>\$ 58.0</b>	<b>\$ 73.8</b>	<b>\$ 94.0</b>	<b>\$ 290.0</b>	<b>\$ 200.0</b>	
* IRLC	\$ 13.5	\$ 16.2	N/A	N/A	N/A	\$ 29.7	N/A	
* Regional CFL	\$ 3.5	N/A	N/A	N/A	N/A	\$ 3.5	N/A	
* Vending Miser	\$ 4.7	N/A	N/A	N/A	N/A	\$ 4.7	N/A	
* Fed Quick Start	\$ 2.1	N/A	N/A	N/A	N/A	\$ 2.1	N/A	
<b>Energy Web</b>	<b>\$ 2.0</b>	<b>\$ 2.0</b>	<b>\$ 2.0</b>	<b>\$ 2.0</b>	<b>\$ 2.0</b>	<b>\$ 10.0</b>	<b>\$ -</b>	
<b>TOTALS</b>	<b>\$ 26.0</b>	<b>\$ 42.2</b>	<b>\$ 60.0</b>	<b>\$ 75.8</b>	<b>\$ 96.0</b>	<b>\$ 300.0</b>	<b>\$ 200.0</b>	
<b>CUMULATIVE TOTALS</b>	<b>\$ 26.0</b>	<b>\$ 68.2</b>	<b>\$ 128</b>	<b>\$ 204</b>	<b>\$ 300</b>			



# Projected 10-Year Savings from Conservation Initiatives

(incremental savings in aMWs)

Initiatives	FY02	FY03	FY04	FY05	FY06	ST	FY07	FY08	FY09	FY10	FY11	ST	Total
<b>Public Benefits (Regional Savings)*</b>													
Market Transformation	5	6	7	9	10	37	117	25	25	25	25	125	242
Low Income Weatherization	1	1	1	1	1	5							
C&RD	15+	15+	15+	15+	15+	75							
<b>Direct BPA Load Reduction Savings</b>													
Conservation Augmentation**	10	15	20	25	30	100	25	25	25	25	25	125	225
> IRLC (RFP, LSO, Prefab)													

- Vending Miser
- Energy Star CFL Rebate
- Fed-to-Fed (Quick Start)
- Corps/Bureau CFL Drop Ship
- Directly Served Federal Loads
- Federal Hatcheries
- Baggen Brown (Waste Water)
- Other Plug and Play Efforts

## Totals

50	57	43	50	56	36	207	50	50	50	50	50	250	467
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## Power Planning Council Targets

Regional	30	100	120	130	145	575	105	105	105	105	105	525	1140
BPA's Share#	30	40	45	50	55	220	50	50	50	50	50	250	450

BPA expends its Public Benefits initiatives under many of the Public Benefits Programs for the 2007-11 period as not developed yet. Assumes \$10 million/year spent on conservation, energy and water. The very different DHS and EPA participation allocation.

Because BPA's conservation augmentation efforts are focused on reducing its Administration's obligation to serve load, we plan to emphasize these investments and use our program authority to pay for these initiatives.

The integrated BPA will have access to the funds of the Statewide program for conservation and energy efficiency and have to be regulated with these customer and they will probably use that conservation program to get a higher cost market discounts.



# PBL Capital Investment Plan

## Rates of Return on Conservation Investments

- Internal rates of return for the 5-year conservation capital program from a regional cost-effectiveness viewpoint (assuming 20 years of benefits, and not reflecting "lost revenues" to BPA) are shown in the following table. (If the lost revenues to BPA are included, the ROR is negative; see the second table for the resulting rate impact.)

Conservation 5-Year Program	ROR
Total Expected Market Prices	14.5%
Total High Market Prices	25.3%
Total Low Market Prices	3.1%

## Accumulated Net Revenues from Conservation Investment Accounting for Lost Revenue Effect

Conservation Infrastructure Investments	Accumulated Net Revenues (\$000)	Rate Impact (\$/MWh)
	FY2002-2006	FY2002-2006
Expected Market Prices	\$ 167,450	0.22
High Market Prices	\$ 251,058	0.07
Low Market Prices	\$ 513,822	0.38



# PBL Capital Investment Plan

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## Summary

- The PBL is embarking on a 10-year Capital Investment Plan that identifies a need for \$1 billion of new capital for FY 2002 through FY 2011. This is incremental to a base level of \$775 million in planned capital expenditures over the next 10 years.
- Actual investment levels will be determined through BPA's capital budgeting process and review by customers, constituents, the administration and Congress
  - These 10-year projections of BPA's investments in hydro-electric facilities and conservation, along with needed investments in transmission facilities, identify a \$2 billion increase in BPA's limit on borrowing authority.
  - This amount should be adequate to fund 10 years of Bonneville's capital needs to meet its responsibilities as a borrowing transmission owner and manager of the BCRPS.